THE

FARMER'S MAGAZINE.

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(No. LXXVII.)

BRANCH I.

ORIGINAL COMMUNICATIONS.

FOR THE FARMER'S MAGAZINE.

On the Rural Economy of France, in a Letter addressed to M. Charles Pictet, one of the Editors of the Bibliotheque Universelle. By FREDERIC LULLIN DE CHATEAUVIEUX.

"Every Government ought to learn, that, to be powerful, it must encourage the only permanent basis of power, *Agriculture.*"

Grenoble, 2d July 1818.

ARTHUR YOUNG travelled in France about thirty years ago, and from this period we may date the commencement of Rural Economy as a science; for it is since the publication of his Travels that we have learned to compare our observations on agriculture, with a view to obtain general results. This method has made us acquainted, not only with the various processes which agriculture employs, but it has shown to us that there is a regular combination among the processes which are in use in every country; that is to say, that these processes, taken all together, constitute a system.

Since that time, Rural Science has been divided into two branches; of which one belongs to that department of Political Economy which has for its object to investigate rural systems, whilst the other is confined to a description of the processes themselves by which these systems are carried into execution.

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The greater part of authors have applied themselves to the study of this second branch of agricultural science, without taking into account the relation between the processes they describe, and the general system of which they form a part. But now that the human mind is accustomed to connect effects with their causes, as well as their consequences, it has become impossible to describe isolated facts with advantage. To be of any use, these facts must be placed in the system of which they form but single points.

There must be an analogy among the various circumstances which combine to form the system adopted in the rural economy of the same country; that is to say, this system, if it be a good one, must be adapted to the soil, the climate, the capitals, and the consumers of the country in which it prevails. Thus, when a revolution has displaced, as in France, a great proportion of the proprietors; when it has changed the condition of the land with that of its proprietors; when it has given to the people other manners and other laws; when it has consequently changed the interests and the wants of the people,—the arrangements of its agriculture must have changed at the same time, in order that they might adapt themselves to the new order of things.

For this reason, it would be worthy of the French Government, to employ an accurate observer to travel in the steps of Arthur Young, that it might be ascertained what changes these thirty years have introduced into the culture of France. Such a tour would be highly interesting; for it would be productive of great benefits. We should learn from it not only to what extent, but by what principles our agriculture has been improved; for, that it has been improved, is put beyond a doubt by the fact, that it now feeds a much greater population.

The last enumeration has proved, that our population has increased three millions within these thirty years, or, a three-hundredth part yearly. The population of France is therefore greater by a ninth part than it was in 1788; and its soil assuredly produces more in the same proportion. But the increase of production must be still greater than this; for the consumption of individuals is not only in proportion to their number, but to their circumstances. But it is evident that the medium consumption of every individual must be much greater now than in 1788; for the greater part of the population is better fed and clothed than it was then.

It would be of importance to ascertain the rural state of France; for this reason, in particular, that there are two methods by which agriculture is improved,—one of them by pre-

serving, and the other by changing the general system of cultivation. In the first case, improvement is confined to a more perfect execution of the ancient processes. In the other, the very basis of the system is changed,—the order and description of the products, as well as the processes. England has adopted this last method; France has hitherto confined itself to the former.

These two nations have each its own motives for acting thus. These motives are not the result of a process of reasoning, but of a sort of general instinct, by which the producers are made to perceive what kind of improvements they ought to attempt, in order to preserve the just relation between agriculture and the state of society. It was necessary that England should change its system, because there had been a rapid change in the quantity, as well as in the quality, of the demands made by the consumers upon the producers. All the sources of prosperity being at once laid open in England, the consumption formed a channel always larger than the production; and the English cultivators thus constantly reaped a profit from their expenditure. But this would not have been the case in France. The political changes of which this kingdom has been the theatre, have hitherto had the effect of favouring the inhabitants of the country, and not those of the cities; for the suppression of all the feudal burdens, as well as the division of the great estates, has been profitable only to the former, while the Revolution has produced no change in the condition of the population of the towns. In England, the reverse of this has taken place. The cultivators have been entirely dispossessed by great proprietors; fortunes are acquired by manufactures and commerce; the cities have prospered by this means, while, in France, they appear to be in a state of decay.

There has ensued from these two opposite systems, a great difference in the amount of the personal wealth accumulated in the two countries. Six hundred and fifty thousand capitalists have been put upon the lists of the Income-tax in England; whilst, in France, there have not been found more than a hundred thousand electors, paying 300 francs (about 12*l.* Sterling) of direct taxes. The *minimum* fortune is nearly the same in both. The six hundred and fifty thousand contributors in England were taken from a population of sixteen millions; the hundred thousand electors in France from a population of twenty-eight millions. We must, it is true, add to this last number, women and persons below thirty years of age, who are not electors, though they may pay 300 francs. But if we should take the number at one hundred and fifty thousand who pay

taxes of 300 francs, it would still follow that there are in England, in proportion, twelve times and a half more wealth than in France. This immense superiority does not arise from the territorial value of the country; for, acre for acre, the territory of England is not worth more than that of France: Its surplus wealth, therefore, consists in personal property.

It is thus explained how half the population of England may live upon the income of this immense moveable capital, whilst there is not a fifth part of the French population that subsists on this description of capital. This disproportion explains, in its turn, the different systems of agriculture which these two nations have adopted.

In England, agriculture has had to supply the demands of an immense luxurious consumption: it was necessary to convert its productions into meat, milk, wool, horses, &c. before carrying them to the consumers. These last were rich enough to pay the cost of this manufacture, however great it might be. The soil of England has gained by it; because the means by which this conversion is effected, enriches the land; and the English farmers have thus been enabled to cultivate corn in the most favourable circumstances.

But if the French cultivators had wished to imitate this example, they would have become the dupes of their enterprise; they would not have found the necessary channels for carrying off their products, because they were only required to subsist a population, destitute of that kind of wealth that pays for the conversion of the raw produce of the soil into the commodities already mentioned. The mass of the people in France require nothing more than the immediate produce of the soil, such as the different species of grain; and these always find the best market. As a greater supply of these was wanted for the increased population, the cultivator, on that account, has worked his old land better, and taken more into cultivation. In travelling through France, it is evident, in fact, that this is precisely the point at which its agricultural improvement has stopped. The crops are still the same, and also the order in which they follow one another; but every operation, viewed by itself, is better performed. This is the effect of greater vigour and intelligence in the cultivator, who is more closely attached to his land since large properties have been subdivided; and, above all, from his being sole master of his fields, since he no longer divides his crops with the tithe-holder.

It is profit alone that stimulates cultivators; and they never adopt a new practice but upon the evidence of facts. Before the common system of agriculture can be changed, circumstan-

ces must have effected a change in the relations which exist between production and consumption. Hence it happens, that when changes are called for, they proceed progressively. Men of weak judgment are the first to depart from established practice; * because those who are held wise always doubt of a better system, and for a time deny its advantages. They have sometimes reason; for it is an equal chance whether innovators are rash or skilful, since they cannot look into the future, which must be developed by the general state of affairs.

If these innovators are successful,—if the products of their new culture are in demand by the consumers,—wise men adopt their practice by little and little, until the whole surface is at last subjected to the new system. Voltaire, it is well known, eagerly set himself to introduce the culture of clover around Ferney. We did not dare to laugh at him, but we had little faith in his experiment. It has, however, succeeded; for at this day the meanest peasant shows his little fields covered with the flowers of clover. I see from my window the country around Ferney. It was formerly naked; the view extended over a sandy tract which produced nothing but rye and buckwheat; and a few miserable beasts hardly subsisted upon the stubbles. They were the property of poor villagers, whose dwellings were seen from a distance, because they were not then surrounded with orchards. I can scarcely now recognise the same villages, they are so much concealed by fruit-trees. Their patches of land, which carry a succession of crops, sometimes herbage and sometimes grain, are for the most part enclosed with hedges of hawthorn. Large cattle, brought from the mountains of Switzerland, feed in these enclosures; and the cultivators convert their milk into cheese, which is carried as far as Marseilles to supply the shipping.

It is thus that a barren territory has been changed, under our own eyes, into one that is delightful and productive. One improvement has led to another; and the whole, together, have taken their rise in a single innovation in the course of cropping. This example proves the utility of works on agriculture, whose writers combine experience with the knowledge of the best systems of other countries. These systems doubtless cannot be made to apply everywhere, nor be suddenly introduced; it is necessary to proceed with caution and selection; but it is still an immense benefit to rural economy, to collect into a few volumes, a description of all the systems and processes of cultiva-

* ' *Ce sont d'abord les mauvaises têtes du pays qui les entreprennent;* '—which in this country is certainly not true.

tion. All Europe may thus learn, at the same moment, the practices, the instruments, and the rotations in use in every quarter of the globe. Cultivators may select from these, without loss of time, experiments which seem best suited to their soil, their climate and their consumers; whereas this interchange of agricultural knowledge could not be otherwise effected but by means of emigration, wars and revolutions.

In a state of civilization so advanced as that of our times, we must look to the wide field which commerce has opened up to consumption, by which a market is found for the produce of a country at the distance of a thousand leagues. The extremities of the globe are now the only limits to industry; and this extension of the market holds out the most powerful inducements to agricultural improvements.

Notwithstanding this encouraging prospect, the greatest obstacle which a new system of agriculture has to overcome, is undoubtedly in the advance of capital which its introduction demands. Every established system affords results which experience has insured. It requires capital, labour, seeds and manures, of all which the amount is already known. These outlays produce in their turn a known quantity of products, for which the cultivator is sure to find a market. The value and the rent of the land are in proportion to the income which the established system draws from the soil.

In renouncing this system to adopt a new one, the cultivator renounces, in the first place, a certain income which the old system had secured to him; but, besides this, he must increase the fertility of his fields by more labour and manure, in order that he may obtain from them the new products; and this requires a greater capital than he had employed under the former system. But these extraordinary advances of capital are commonly regarded as so much money lost; for this reason, that agriculture never returns this capital in a mass. To do this, it must yield 100 per cent., which is impossible. The earth can only return a high interest for the capital expended on it; the capital itself is necessarily sunk.

But, with a view to the employment of capital in agriculture, none of the treatises on the art can be of any use, while the laws, the contracts, and the situation of the cultivator prevent him from applying it. If it is found, for instance, that a capital laid out in extraordinary improvements ought to make a return of ten per cent. per annum, twenty years would be necessary to replace the capital with interest. Hence it is evident, that a farmer on a short lease cannot attempt this kind of improvement. The metayer also cannot advance capital, both because

he seldom has the means, and because the terms on which he occupies are not such as to afford him a prospect of reimbursement. We must therefore consider the condition of the cultivators, before we can advise them to depart from their established practice. This is no doubt liable to change, like every thing else; but this change commonly precedes a change in their cultivation. The Revolution, by dividing large estates, has already placed a great number of families in France in a condition the most favourable to agriculture; but hitherto their small properties have been cultivated, much more with a view to get back the original price, than to their increase of value in future.

The various systems which prevail in France, are much less favourable to the improvement of the soil, than the exclusive system of large farms, which has been adopted in England; but, on the other hand, the cultivators of France supply the State with a much greater population. If it be the interest of individuals to look only to the nett produce, it is the interest of the State to give its attention exclusively to the gross produce:—provided the products be enlarged, it is of no consequence to the public in what proportion they are divided between the proprietor and the labourer; for they are both the subjects of the State. This is the object which governments actually profess to have in view; and they have accordingly adopted a system of prohibitions, for the purpose of giving a premium to production. This stimulus has, no doubt, been very powerful in England; but it can promote public prosperity only while the neighbouring states have not discovered the secret; for the effect of prohibitions is at an end as soon as they become reciprocal.

This is the situation of the different States of Europe at present. But it will not last ten years; for the system is useless when it becomes general; and their duties will yield them nothing. They will then open their markets to one another, convinced as they must be by experience, that there are no means of enlarging production so effectual as extending the demand, and that the demand itself will increase as a larger field is opened up for its supply. This is not denied even by the advocates for the system of restraints; they only add, that while we gain access to foreign markets by means of a free trade, these foreigners, in like manner, are admitted to our market; whereas prohibitions secure the market of every State to its own people, and a market which is always the nearest and the most certain. I shall not repeat here the arguments of the Economists in answer to this mode of reasoning. I shall only observe, that it can only be applied to States whose industry is so low as to have

nothing to offer in exchange for the industry of foreigners. Such a people may adopt the prohibitory system, in order to force the growth of industry among themselves, as fruits are ripened in winter in a hot-house.

But France has reached beyond this stage of her progress, and has nothing to fear from the importation of those commodities which she can produce herself. The rest of Europe have reason to fear the industry of the French; for, according to all appearances, they will soon have no rival. This is a point of view under which this kingdom has hardly ever been regarded, even by itself. The French have hitherto enjoyed the reputation of being an agricultural and warlike people: and they set no value on any other. In fact, it was agreeable to the spirit of their feudal institutions, which allowed no other distinctions than such as were derived from the soil, or from the sword. But with the change of its government, another feature, almost without being perceived, has been added to the former; for, under the new *regime*, personal property also confers distinction.

France now contains an agricultural, military, manufacturing and commercial population, and her government cannot escape the difficulties which so many interests must present, but by extending, by every means in its power, a demand for the industry of the nation, without giving itself any trouble about the manner in which that demand may be supplied,—for this is the concern of the people themselves. Governments have no occasion to encourage their industry, except in cases which require the aid of a collective body. They ought to leave to individuals all that can be done by the power of individuals. Governments misemploy their time, when they set about cultivating or manufacturing themselves, by way of giving an example to their people: it is only necessary to place the people in circumstances favourable to industry; and these circumstances consist in opening to productive industry as many outlets as the geographical situation of the country will permit, and giving all the means of access in their power to these markets.

France has already done much in this respect. No country is so advantageously situated—none possesses so many fine harbours, or more great roads. She has already intersected her territory by useful canals; but her prosperity will be increased before ten years elapse, if she will add together all the sums which her Government scatters about in slender encouragements, and apply them to the single purpose of improving the secondary roads, of which her provinces are at present altogether destitute.

The greater part of the French territory is comparatively of little value, from this want of communication. Capital never reaches these secluded districts; they are avoided as places of residence; and, by a reciprocal effect, the small income which the land yields does not afford the means of improving it. Strangers are astonished when they are told that land may be purchased on the banks of the Loire, thirty leagues from Paris, at a price very nearly the same with that of land in America. Such a thing could not happen, if the surface of the kingdom were formed into a sort of net-work, more or less regular, by means of roads and second-rate canals. Industry and capital would be no longer accumulated on some points to the injury of others. They would be spread over all parts of the kingdom, as far as natural circumstances would permit, with equal advantage. A State cannot be said to be flourishing but when it has reached this point. All that forms the frame-work of this system of communication, is already completed in France. It remains only to fill up the empty spaces; and it cannot be supposed that this will be neglected; for these labours accord with the administrative system which she has adopted.

It may be supposed that the growing prosperity of France will be arrested by want of capital. Smith has demonstrated that the industry and profits of every people must be in proportion to their capital. This principle is incontestable, since there can be no profits without labour, and no labour without an advance of capital. The capital of a people is thus the limit of its advances, for its labour and its profits. In this respect, the situation of France would be unfavourable if the word *capital* meant only real value; for we have seen that it does not possess, in proportion, more than the twelfth part of the capital of England. But, in our days, the word *capital* means also the value of fictitious capital, which springs up from credit; for every thing, even wealth itself, has become an abstraction in the social as well as in the political *regime.*

These fictitious capitals, generated by credit, replace, in the advances they make to industry, as well as in commercial transactions, the real capitals that it was formerly thought necessary to employ. Hence it follows, that a nation may become rich in a few hours, since it requires but an instant to sign bills of exchange, or stamp bank notes. * By this means, every nation may acquire in a single day the capital which it

* The thinking reader, especially if he be a Bullionist and an Annuitant, may shake his head at this unmeasured assertion. Yet there are as wild people among ourselves.—Cox.

needs for paying the wages of labour. Their real wealth, therefore, no longer sets bounds to their industry, because this is no longer a fixed quantity, but an eventual sum, which credit enlarges or diminishes at its pleasure. It is not the main point to be rich, but to be in good credit; for, in respect to industry, the one is equivalent to the other. Now, credit rests on the probability of profit being obtained by the labour which this same credit puts in motion. Industry is therefore the foundation of credit, as credit, in its turn, is the source of industry. One might therefore say, that industry creates the capital which it needs. When a people has arrived at that stage of improvement when the place of real capital is in this manner supplied by what is fictitious, there is no longer any difficulty to find the capital necessary to promote industry,—the only difficulty is to find the industry; since the latter will speedily procure the former.

The laws which regulate labour and credit, apply to agriculture as well as to all other kinds of industry: But they reach it later, because agriculture is, of all employments, that which yields the smallest profits, and most slowly. For this reason, commerce and manufactures overflow with capital, before it is transferred to the cultivation of the soil. Capital, whether real or fictitious, also always rises to the surface,—that is to say, to the height at which it hopes to find the greatest profit. From this point it afterwards descends, as it were, by regular steps, from one species of industry to another, till it reaches that which occupies the bottom, which is the most solid and the least profitable, namely, agricultural industry. In England, credit is so extensive, that, after having filled all the other branches of industry, it supplies the farmer with capital by means of the provincial banks. But the farmers of France are yet far from being in a condition to warrant this mark of confidence, and consequently it does not exist.

To this letter the Editor has subjoined some judicious remarks of his own, of which the object seems to be to correct some of the facts and reasonings of M. Chateauvieux. He objects, in particular, to the inference drawn by M. C., that the agriculture of France has been improved within these thirty years, because it now supports a greater population by three millions. If this be the fact, the Editor is inclined to ascribe it to the extension of tillage, chiefly occasioned by the division of landed property,—a circumstance which is quite consistent with

a progressive deterioration of the soil.—Corn, he assures us, is still grown year after year upon the same land. Since the Tour of Arthur Young, potatoes, and hay from cultivated herbage, have become more general; but they are not introduced with a view to enrich the land for bearing grain, nor according to any approved system, except near the capital.—With regard to liberty of commerce, which the writer expects to see generally established in ten years, the Editor contents himself with expressing his wishes and his doubts, which, like the oracular responses of the good Vicar of Wakefield, may mean the same thing.—The conclusion of the letter is omitted, as being somewhat too lofty for our pages, besides that it has no relation to rural economy. We are told, as a matter of course, that France, whether victorious or vanquished, must always be the first State in Europe; and the reason is, that the eyes of all the world are fixed on nothing but France; that she is the empire of fashion; that the history of France will be the only history of the age; and that her manners and her laws are the only objects of attention, because she takes the lead of the human race in the career which futurity prepares for it.

The agriculture of France, as well as the other branches of her industry, cannot be a matter of indifference to her neighbours, or to this country in particular, with which the intercourse is so easy and frequent. It may not, therefore, be altogether useless to correct the misrepresentations on this subject, which more than one late traveller has contributed to spread among us. The Editor does not hesitate to admit, that if the districts visited by Arthur Young thirty years ago, were surveyed now, there would probably be found very little improvement.

CON.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Science of Botany as connected with Farming.

SIR,

A KNOWLEDGE of farming is often supposed to be easily acquired; and the operations of husbandry, which seem to be regularly pointed out by the uniform succession of seed-time and harvest, exhibit little of an intricate nature, to the profound metaphysician, or the man of science. While, it must be admitted, that a tolerable knowledge of farming may be acquired without much mental exertion, and that many carry on farming operations with considerable success, by the mere dint of practice;

it will at the same time be allowed, that a scientific farmer has many advantages which his unlettered brother cannot possess. Permit me therefore, through the medium of your Magazine, to point out to your readers, a science which seems intimately connected with agricultural pursuits.

It would be absurd to suppose, that farmers should become complete botanists; few could spare so much time as would be requisite for acquiring a tolerable knowledge even of the indigenous plants of their native country, and still fewer, it may be presumed, would feel inclined to pursue the subject that length; but a general knowledge of the sexual system, and the Linnæan classification of plants, with the names of those most commonly met with in our fields and meadows, and the classes and orders to which they belong, could be soon obtained, and would be of more advantage to a farmer than might at first sight be supposed. When, for instance, he should find any choice variety of his grain degenerate into other varieties of less value, or even making any approach to such degeneracy, if, in place of laying the whole blame on the soil, as is most commonly done in these cases, he would consider that it proceeded from the admixture or introduction of the fecundating farina of plants of different varieties, belonging to the same genus, which, from some local circumstances, had taken place while they were in flower, he would be more likely to adopt the proper method to prevent such deterioration in his future crops.

An excellent communication on the transplantation of turf, in your last Number, p. 400, affords another instance; where it is stated, that Mr Blyth 'is amply satisfied with his attempt' at transplanting turf; 'for, with the exception of a small part 'planted with a *coarse kind of grass*, (and which seemed to re-'mind us of the necessity of caution in *the choice* of plants), the 'whole,' &c. Had this note been accompanied with the names of such grasses as should be chosen or rejected, it would have added to the worth of that valuable communication. Limited as the knowledge of botany certainly is amongst farmers, those who intend to lay down pasture grounds by transplanting turf, would make a shift to find out the proper kinds of grass, if they had any sure data to go by.

The plants which grow spontaneously in any place, afford the surest criterion whereby to judge of the nature of the soil. We shall conclude this paper by a few remarks on that subject. The Common Reed grass (*Arundo Phragmites*), and the Common Pond weed (*Polygonum Amphibium*), grow on alluvial soils, which yield excellent crops if properly drained; but where the Field Horsetail (*Equisetum Arvense*) grows freely, it indicates a cold

and retentive subsoil. The Field Pimpernell (*Anagalis Arvensis*), the Field Madder (*Sherardia Arvensis*), the Corn Gromwell (*Lithospermum Arvense*), and the Lamb's Lettuce (*Valeriana Locusta*), grow on cultivated lands, where the soil is a strong black loam on a dry bottom; where such a soil is wet, the Clown's All-heal (*Staychs Palustris*) makes its appearance. A light sandy soil is known by the presence of the Red Dead Nettle (*Lamium purpureum*); the Shepherd's Purse (*Thlaspi Bursa pastoris*). If the Parsley Piert (*Aphanes Arvensis*) is found, the soil is rather unproductive; if the corn spurry (*Spergula Arvensis*) grows very thick, the ground has likely been rendered too fine by the harrow; if the Sheep's Sorrel abounds, there is generally a mixture of peat earth in the soil. The Common Ragwort (*Senecio Jacobea*) and the Corn Thistle (*Serratula Arvensis*) grow indiscriminately on light and strong loams, but always indicate a fertile soil. The Whitloe Grass (*Draba Muralis*) and the Common Knawel (*Scleranthus Annus*), grow on soils that are dry, sandy, and poor in the extreme. The Common Rest Harrow (*Ononis Hircina*) is often found on dry pasture, and where the soil is incumbent on rotten rock.

A description of the plants specified above, and of such others as the farmer is most likely to meet with in his perambulations, might be added here; but as many of your readers may think this article contains quite enough of *dry reading* already, I shall reserve such remarks, to form the subject of some future communication. I am, Sir, your obedient servant,

G.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Experiments with Rape-Dust as a Manure.

SIR,

As it was generally known in this quarter that our southern neighbours were in the practice of using Rape-Cake as a manure, I had frequently thought of trying its effects in our northern climate, when the very flattering accounts of its value, detailed by your Norfolk Reporter, induced me to carry my intention into effect without further delay. Accordingly, in May 1817, I ordered a thousand cakes from London, weighing about a ton and three quarters, which cost nearly twelve pounds sterling, carriage included. When it came to hand, I found very considerable difficulty in reducing it sufficiently small to be applied to the soil; but, after it had lain for some time upon a damp clay

floor, by attracting the moisture, it was found much easier reduced. Without, however, mentioning the various methods tried, it may be enough to say, that the best and readiest plan I could hit upon for pulverizing it sufficiently, was that of employing men with heavy iron hammers, such as are used for working stones in a quarry, with which they beat the cake, when laid on a floor sufficiently firm to resist the force of the hammers. The hammers were merely lifted perpendicular, in a line with the man's leg, and allowed to drop with the whole top of the implement upon the cake, which was found heavy enough for reducing it, without striking with the face of the hammer, as in the case of driving a wedge, or breaking stones. By that plan, I found a man could prepare about four hundred weight in a day; and the rape-cake was reduced so small, as to be all passed through a riddle, such as is used in cleaning oats,—which was the condition of the whole I applied to the ground as manure.

The first experiment was on turnip, sown in June 1817. But it may be proper, first, to state the method employed to spread the rape-dust, before noticing its effects as a manure. The machine used in spreading, or sowing the rape-dust, was the common bean drill-barrow, which was found to answer the purpose completely; as, with a very little attention, it could be made to sow any given quantity per acre. The ground intended for the turnip was perfectly smooth and level. A very small furrow, quite straight, drawn with a plough, was first set off. The drill was then set down upon the edge of that furrow, say within about ten inches of it, the distance being regulated by the intended breadth of the turnip ridges. The rape-dust was then filled into the machine, when it was pushed down one side of the said furrow, and up along the other side, care being taken to preserve the regular distance from it; and which a little experience soon rendered the women employed very expert in performing. A plough, with a pair of horses, followed immediately after the barrow, which, with the furrow it threw up, covered the rape-dust, and formed the ridge at the same time: So that, in continuing to run the drill-barrow always within the stated distance of the last made furrow, and following up with the plough to cover the rape-dust, the business was speedily and satisfactorily finished with respect to the manuring,—when the turnip seed was sown without the least delay.

The field in which the experiment was made, contains a little more than four acres, of a poor moorish soil naturally. One half of the field was manured with rich dung, at the rate of nearly 15 tons *per* acre. Nearly about a half of that part of the field left was then manured with the rape-cake, according to the

mode described above, at the rate of nearly five hundred weight *per* acre; and the remainder of the field was finished at the rate of seven hundred weight *per* acre. At the same time, six drills in different places, among those sown with the rape-dust, were left without any manure whatever. The crop on that part of the field which had the common dung was excellent. On the six drills without any manure, none of the turnips exceeded the size of a pigeon egg; where they had the five hundred weight of rape-dust *per* acre, hardly any of the crop were larger than a good apple; and even the seven hundred weight *per* acre appeared too small a quantity, as the crop could not be reckoned above a fourth of the value of that after the common dung. I need hardly add, that the part of the field manured with the rape-dust at the rate of a ton to four acres, being so very worthless a crop, was ploughed up in the October following; and that the part manured at the rate of rather less than three acres to the ton would have shared the same fate, had not the limited extent of my turnip crop induced me to allow them to stand.

In the above experiment, I could observe no objection to arise from the mode of applying the rape-dust, as the soil was thrown sufficiently thick over it to prevent the turnip seed being injured; and the braird was as regular and early as on the rest of the field; while the young plants appeared completely within the reach of any beneficial effects to be attained, as the soil around them was perceived to have a mouldy appearance, from the fermentation of the rape-dust below. Indeed, from that circumstance, more sanguine hopes were at first entertained of the success of the experiment than were realized in the end. After all, it is possible that the quantity of the rape-dust applied, was too small to produce any valuable effect. But the conclusion I drew from the whole was, that if, upon very poor soil, nearly three pounds worth of rape-dust *per* acre did not grow a crop of turnips worth more than a third or fourth part of the value of what could be grown by five guineas worth of dung, valuing the 15 carts *per* acre at 7s. *per* cart, the subject was hardly worth further investigation.

The next trial of the rape-dust's efficacy as a manure, was made on land that had been fallowed in summer 1817. All the field was dressed with compost, and the whole was likewise dunged at the rate of ten double-cart loads *per* acre, with dung of very middling quality, with the exception of one ridge, containing very nearly four-tenths of an acre. On that ridge 3 cwt. of the rape-dust was sown broadcast, along with the wheat, in the end of October, and harrowed in along with the seed; the whole field being finished on the same day. During the winter

and summer, the crop on the ridge sown with the rape-dust, was evidently less vigorous than the rest of the field; and, when cut last harvest, was perceptibly lighter than when the dung was applied.

The third experiment was made on light, dry sandy soil, that was sown with wheat the beginning of last March after turnip, which were chiefly consumed on the ground with sheep. On a ridge (exactly under similar circumstances with the rest of the field) containing nearly one-third of an acre, 3 cwt. of the rape-dust was sown broadcast, and harrowed in along with the seed. Through the earlier part of the summer, the rape-dust appeared to have some influence, as the crop showed greater vigour on the experimental ridge, than over the adjoining ridges; but when the whole came to be cut at harvest, it was utterly impossible to perceive the smallest difference either in the length or thickness of the crop after the rape, from the rest of the field.

The fourth experiment was made on clover lea, where the rape-dust was also sown broadcast, and harrowed in with the oats, the soil being of a medium quality. There 2½ cwt. were sown on a ridge containing very nearly one third of an acre. Soon after the oats brairded, the plants evidently assumed a stronger appearance than what the adjoining ridges presented, which had got nothing extra; and, during the whole summer, the ridge with the rape-dust preserved the superiority of length and thickness. At harvest, when the field was cut, care was taken to keep the experimental ridge by itself, when it was found to have yielded sixteen sheaves of oats more than either of the two ridges adjoining. I intended to have kept the three separate from one another, and thrashed them by themselves, and likewise to have weighed the straw; by which I could have ascertained with certainty how far the rape-dust had been valuable or otherwise, as manuring the single ridge had cost within a very trifle of twenty shillings. But in the hurry common to that season, I forgot to give the necessary directions when the crop was carting home to the stackyard; yet as every attention was paid to making all the sheaves on the experimental ridges as nearly as possible of the same size, it was evident that all the grain in the sixteen extra sheaves, could not nearly compensate for the expense; while the benefit, even including what might be drawn from the greater quantity of straw, was apparently such as would hardly encourage the practice of manuring with rape-dust.

At the same time, it is readily admitted, that neither of these two last experiments on the effects of that article, were brought

down to the same certainty as they would have been, had the different ridges alluded to been thrashed by themselves. But as its apparent value was not such as to justify a repetition of any of the plans I followed in applying the rape-dust, I would not recommend an extensive use of it before its value is more accurately ascertained in this country. As the failure, however, may have proceeded more from a defect in the mode of application, than in the substance itself, it surely would be gratifying to many of your readers to learn, through the medium of your Journal, that rape-cake can be beneficially employed as a manure in this quarter, as well as in the more southern part of the island.

Permit me only to add a few words on bruised bones as a manure. About two years ago, very flattering accounts were circulated in this county relative to the wonderful effects produced by the above substances, when used in the growing of turnip. A cargo was accordingly commissioned from Newcastle, the place, it appears, where they could be most readily procured, as a person in that neighbourhood, having a machine for breaking or bruising the bones, is, or was, in the practice of collecting and preparing them for market. They were landed at one of our sea-ports, and divided among several farmers, at, it is believed, eight guineas per ton from the vessel. Where they were applied to soft dry land, the effects were considerable, although it was found necessary to use a greater quantity per acre than some were led to believe sufficient, as the best turnips were only found where the largest and freshest pieces of bones were laid. But, wherever they were used upon strongish soil, they were found utterly worthless, as my informant assured me, notwithstanding he used three times the quantity per acre recommended by those who were understood to be best acquainted with the business. If you think what I have said on the above subjects be worthy of a corner in your Miscellany, it is much at your service. And I am, Sir, your obedient servant,

H.

East Lothian, 12th January 1819.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Profit obtained by Warping Land.

Sir, *Hull, 10th December*, 1818.

In your publication for August 1815, you inserted some remarks I sent you respecting the Composting of Whale Blubber, which I am sorry have not hitherto been answered.

Conceiving the annexed result of an experiment on Warp may be useful to some of your readers who occupy lands adjoining rivers which deposit mud, I transmit the same to you; and, should it be found worthy of insertion, beg it may find a place in your pages. I am, respectfully,

Sir, your most obedient servant,

ANTY. ATKINSON.

Dairy Coates Lodge, near Hull,
this 6th day of December 1818.

REPORT of the result of an experiment made upon five acres of old tillage strong clay land, sixteen years under the plough, during which period it has had but two clear fallows, situate on the banks of the river Humber.—In the summer of the year 1817, it was manured with Warp, wheeled or barrowed out of the Humber, in the proportion of 55 cubic yards or tons per acre, carted upon the land in regular heaps, and spread and ploughed into the land, which was sown with wheat, and produced 6¾ quarters per acre. In order to prove the result of this experiment, I left one acre which had been well manured from the fold-yard, and cropped with potatoes. This acre was also sown with wheat, but without Warp; the produce was only 2¼ quarters, and inferior in quality to the wheat produced on the land manured with Warp.

On ploughing up the wheat stubble this autumn, from its appearance and cleanliness, I have no doubt but it would produce a second crop of wheat; but I have reserved it to be sown with oats in the spring of the year 1819.

The cost of wheeling the Warp out of the river was 4d. per cubic yard; carting and spreading on the land 2d. per yard;—whole cost per acre 1*l.* 7s. 6d., which I calculate will bring three crops—say wheat, oats and beans, in rotation.

ANTY. ATKINSON.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Exportation of Grain does not exhaust the Soil.

SIR,

January 1819.

THE notice of a meeting of agricultural friends of mine has been attracted to, and we have been considerably amused with, the debates that have lately been introduced into your Magazine by Mr Headrick, on the subject of Sir Humphry Davy's opinion, that the Exportation of Grain from a country must ultimately tend to exhaust the Soil.

We were almost unanimously of opinion, that grain may be exported from any country, or, what brings the matter nearer a *focus*, from any farm; and that, by retaining the remainder of the produce, the country or farm, by good agricultural management, may be improved. This sentiment I was requested by some of the company to communicate to you; and I shall, at the same time, take the liberty to make a few observations on the subject.

I beg leave, with all deference to Sir Humphry Davy, to think that Mr Headrick has confuted the doctrine of Sir Humphry in a very able and satisfactory manner: and I agree with almost all he says, as well as with what is brought home to us by A. H. on the same side of the question, in your Magazine.

A field may be either naturally fertile, or, by various methods, it may be made so; and it is so much within the view of every one in this part of the country, that this fertility may be continued by proper culture, even where the greater part of the grain of the field is annually sold, that there does not seem much room for dispute on the subject; though there can be little doubt, if the whole produce, both of grain and straw, were returned in the shape of manure, the field would be still more fertilized. But careful and skilful cultivation supplies most fully the defect.

On the same principle, a good grass field may be pastured annually by a number of cattle, each of which may probably carry away several stones of beef and tallow, to be consumed by the inhabitants of some luxurious city; yet the field, merely from the dung that is left by them, increases every year in fertility.

As to Pol-Œconomicus Redivivus,—

'*Sequitur Patrem, haud passibus æquis*—'

Mr Headrick seems to have answered all his remarks satisfactorily, except one, and that is, in regard to the effects of water in nourishing plants. Mr Headrick says, (page 37), 'In warm 'climates, water seems to answer every purpose of manure to 'plants.' I apprehend Mr Headrick must fail in this too general proposition, notwithstanding the able and ingenious assistance he has met with from Dr Howison, (page 407.)

Mr Headrick surely does not mean to contend, that crops of wheat may be regularly taken off a field in a warm climate, where no manure is bestowed, but plentiful effusions of water. This would be carrying Dr Sangrado's system into the vegetable kingdom with a vengeance. It puts me in mind of a story that is alleged to have happened at the settlement of a minister in the poor parish of St Bathans, among the Lammermoor hills.

The late Lord Wemyss, who was the patron, told the new settled clergyman, among other great commendations of the benefice, that although the stipend was small, yet the situation for air and water was excelled by none in Scotland. To which the minister replied, True, my Lord, if clergymen could live on air and water alone, I would be well settled indeed. The stipend was about 27*l.*, and this smart and frank answer made his Lordship add 20*l.* to it, during the minister's incumbency; which small sum was an annual remembrancer to his Lordship to procure the clergyman a benefice where he could have something more substantial than air and water to live on.

What Pol-Œconomicus answers to Mr Headrick's doctrine, of water answering every purpose of manure, is fallacious. He says, it is not water that acts as a manure, but the particles of fine soil suspended in the water; and that the water serves merely as a vehicle.

There cannot be a doubt, that muddy water thus enriches and fertilizes a soil. Hence the fine alluvial soils near all great rivers; but, to a certain extent, pure water alone augments fertility. I have witnessed Mr Stevens, the celebrated floater, set the water of a pure spring, within a few yards of its source, over a piece of grass; and the improvement on the verdure of it, within a few months after, was astonishing.

We also know that there are many aquatic plants that live and flourish, apparently, entirely on water. And, although I cannot agree with Dr Howison's hypothesis, (page 411), of a grain of mustard seed placed in the crevice of a rock in an island of diamond, ever producing a vegetable soil on such an island, because mustard is neither an aquatic nor a cryptogamous plant, nor one that lives and thrives on moist air; and therefore, I think will not, under these circumstances, propagate ripe seeds: Yet I am well satisfied, that these large accumulations of moist vegetable matter, called peat-mosses, which may, in process of time, be converted into fertile fields, are a collection of remains of plants that have been nourished by air and water alone; although air and water will not be sufficient, either in cold or warm climates, to manure a field of corn.

I apprehend, that although water may, with the assistance of heat, as Dr Howison observes, make almost any seed vegetate; yet no plant, with water alone, can be brought to such perfection as to propagate its species, except it be the *sphagnum palustre*, or other such aquatic plants. I know corn will not ripen or come to perfection in water; and even a lily root, though it sends up blossoms in water, becomes immediately exhausted, and dies.

A. S.

*** Another member of the Club referred to in the foregoing paper, has sent us a communication on the same subject. Though the conclusions be the same in both, yet, as the line of argument is somewhat different, we shall lay it also before our readers, under an impression that the discussion may now be considered as closed. If it has been observed, in point of fact, that the soil of grain-exporting countries have been, or are gradually exhausting, the reason must certainly be found in the too frequent repetition of corn crops on the same land, and not in the circumstance of their exportation. The demand for exportation may tempt farmers to this hurtful practice; but that is foreign to the question.—CON.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Thoughts on the Question, Whether the Exportation of Grain exhausts the Soil on which it grows?

SIR,

THIS is a question, concerning which, as in the case of most other general inquiries, a considerable difference of opinion may be expected to prevail; but, in so far as I know, none of those who support the affirmative side, have adduced arguments sufficiently convincing to excite alarm in the minds of the lawgivers of any state for the fate of their country, under a system of policy which admitted an extensive exportation of grain. Landholders uniformly act as if it were decided in the negative. Their influence is exerted in favour of exportation, in all cases where the foreign market is the best, even at the risk of ruining their estates,—or, rather, the latter idea never enters into their minds. The consumers of grain may be considered the class who have a truly patriotic feeling for their country, and a regard for property which is not their own. They encourage importation, or discourage exportation, as the case may seem to require, in order that grain may be plentiful, and of course cheap.

From these general facts a presumptive argument is deducible, that importation of grain does not exhaust the soil in which it grew. But there is another class of facts, founded upon experience and observation, which appear decisive of the question. So many instances of these have been industriously collected and ably stated by your Reverend correspondent Mr Headrick, that it may be deemed superfluous in me to trouble you further on the subject. Indeed, I am almost of this opinion myself. For Mr Headrick has, in his first paper, discussed the merits of the question with such fairness and ability, and, in his

second, has so completely refuted the objections of Pol-Œconomicus Redivivus, that it is not very probable we shall hear any thing further on the other side. The general question may therefore be considered as set to rest; and I trouble you, on the present occasion, to give you an outline of the opinions of an Agricultural Club, of which I am a member. This Club meets annually in the house of a gentleman, whose exertions to promote the interests of agriculture are well known, and who has furnished many valuable articles on rural subjects for your Magazine.

At last meeting of the Club, this gentleman, among other questions, proposed the one to which I have already referred, and every member gave his opinion of its merits; and the almost unanimous decision was, that exportation of grain from a country does not exhaust the soil in which it grew.

By the exportation of grain from a country, was understood the exportation of that quantity which remains after supplying the demands of the country. What exhausts the soil of a whole country, must first exhaust the soil of some of its parts. Taking our own country for an example, the parts which would first be exhausted are those districts from which the greatest yearly exportations of grain are made, without receiving an equivalent of foreign manure. These were considered to be all the tillage lands in the country, which are situated at too great a distance from towns, villages, distilleries, breweries, &c. to command a supply of the manure they furnish. This, to a great extent, is the circumstance of every county in England and Scotland. To such lands, it is almost needless to remark, the effect must be the same, whether the surplus grain consumed elsewhere is disposed of at the nearest market, or sent over seas. To instance particular counties, such as Norfolk, East Lothian, Forfarshire, &c. seemed to be too much limiting a case which is nearly universal.

This appeared to the Club the fair state of the question; and, in answering it, they almost unanimously agreed, that, so far as their experience and observation enabled them to judge, the soil is not exhausted by the exportation of its surplus produce. On the contrary, every farmer who, in similar circumstances, exports a greater quantity than his neighbours, keeps his soil in a higher state of fertility than theirs, from his natural resources; and in such cases, no symptoms of diminution in its productiveness have been ever observed from the lapse of time.

It further appeared to them, that the exportation of the produce of pasture lands ought also, if Sir H. Davy's opinion was correct in the case of grain, to lead to the exhaustion of the soil.

Upon this branch of the subject it was agreed, that there is no evidence of such lands having become less productive than they ever were, if stocked with plants suited to the circumstances of the land. No doubt, many proofs exist of inferior soils, when sown with the seeds of grasses suited only to the richest, after yielding a scanty crop or two, degenerating into their original state, and producing nothing but coarse herbage. But this is not the effect of exhaustion by pasturage, but of the natural constitution of the soil; for we see the pastures which, yielding the most herbage, support the most stock, not only maintain their fertility, but continue to improve, though about 20 stones of meat and tallow per acre, may every year be carried off without return, and many times that weight of herbage.

In regard to the instances given by the learned author of Agricultural Chemistry, as well as Pol-Œconomicus Redivivus, of lands which were once rich and productive, now having become either comparatively infertile, or altogether barren, the Club entertained, with some confidence, an opinion that the effects were ascribed to a wrong cause. As the Club were also of opinion that Mr Headrick had explained the causes of the diminished fertility of the lands here alluded to, in a satisfactory manner, I shall not trouble your readers with a detail of their arguments, nor of the additional instances which were brought forward,—as they are all referable to the same class of facts.

As to our own country, which is rather an importing one, it seemed clear that its soil had not been enriched, to any visible extent, by our importations. The corn imported is for the use of towns; and the adjoining lands only are benefited by its consumption. These have not been observed to be in a progressive increase of productiveness, although more manure is applied to them than their whole produce would afford. The soil is, no doubt, more productive under the present system of cropping, than it was under the one which it has superseded: But the same remark applies to the soils which have not the benefit of foreign manures. The fertility of the soil cannot be increased *ad infinitum*:—There is a *maximum* established by the laws of nature, which sets limits to human skill and ingenuity. Notwithstanding the large quantities of manure which have annually been deposited in town lands, ever since the towns were built, these lands are not much more fertile than other lands of similar soil and climate, which do not possess these advantages;—while it is to be observed, that were the same quantities of manure to be applied to the latter lands, they, at first, would produce more luxuriant crops than the town lands; but afterwards would diminish to a similar degree of productiveness. As,

on the one hand, there is no perceptible decrease of the productive powers of landward districts, under a judicious system of management, though the greater part of their grain produce is annually exported; so, on the other, there is no perceptible progressive increase of the productive powers of soils in the vicinity of the towns where that produce is consumed.

Upon the whole, it was the opinion of the Club, that wherever a judicious system of culture and cropping was practised, including a proper succession of green and white crops; and a due use made of the means, within the power of every farmer, of preserving the fertility of his lands (which need not be here enumerated); and if the green crops, straw, and fodder, were consumed on the farm,—that the soil will not be exhausted by the exportation of the grain produce. P.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Salt as a Manure.

SIR,

THE very contradictory testimonies given by different persons, before the Committee of the House of Commons on the laws relative to the Salt Duties, from the Report of the Committee, as communicated in the Farmer's Magazine for November last, have induced me to make a few observations on the subject. When the statements of Sir John Sinclair, Mr Curwen, Dr Paris, Mr Manley, &c. are read, with those of Mr Hilditch, Mr Fenna, and Mr Whitby, we just know as much of its use in agriculture, as we did before we heard any thing about it. How it happens that some can find it almost universally beneficial, whilst others find it as universally injurious, I cannot tell. The statement of Mr Fenna appears so regular and methodical, and so extensive, as to set aside the use of salt in agriculture, or his own veracity, for ever. The proper way to discover its merits, is to subject it to general experiment;—and the friends of salt are appealing to this tribunal, whilst the others seem to fear so fair a trial. Suppose that any of the most valuable and well known manures, dung or lime for instance, were as little known as a manure, and as hard to obtain as salt with its highest duties, would not the prejudice of some, and the interest of others, make the reports of their benefits as contradictory as with regard to salt?—for what farmer is there but has sometimes known one or both of these valuable manures to fail in their intended effects? I have a field that was limed in 1815, by my predecessor on the farm, that has hitherto whol-

ly failed, owing partly to the field not being adapted for lime, and partly to its being laid on in an ill-judged manner. I have known black dung to be almost lost, by being laid upon meadows in spring;—a drought succeeding, it literally pined away. I have known many, and yet know some, farmers in this country, so prejudiced against coal-ashes (now so well known as a manure), that they declared them a poison to land. Salt, when it has been generally tried, will be properly appreciated. My idea is, that its benefits are effected, more by its conducing to the health of both animals and plants, and being so great an enemy to putridity, than, by stimulating or uniting with the soil, to form any more food for their growth, or nourishment. It may also mend the quality of grain, by making it drier; as Mr Manley states it to be a great drier of cheese. Thus, grain from the sea-coast is always the soundest, and of best quality; and I have heard say, that all sorts of cattle thrive exceedingly on the salt fens of Lincolnshire. A LANCASHIRE FARMER.

January 18, 1819.

P. S.—I wish, with W. J. L. M., in your last Number, that there could be some method for your correspondents to make themselves understood, when speaking of their local weights and measures; at least, they might reduce their weights to pounds Avoirdupois, their measures to cubic inches, and their acres to statute measure. What proportion does the Linlithgow boll bear to the Winchester bushel? At present, many of them are wholly unintelligible to an *Engish* reader. I wish your Lanarkshire Reporter would state what sort of pints he means in his last Report.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On Weights and Measures.

SIR,

IN your last Number, your correspondent W. J. L. M. has brought under view the different measures for corn; a subject which had every appearance of being finally adjusted lately, under the patronage of the Highland Society. There seems, however, to be a difficulty in this business that will not easily be removed. And, so far as I have been concerned in the buying and selling of corn, I have not found the difference in the firlot of the counties in the south of Scotland, to which my practice has been confined, any great inconvenience

The regulation of weights and measures attracted the attention of the legislature in very early times; and we find that a Committee of Parliament, in the year 1618, made the Stirling jug, and the Linlithgow firlot, the standard measures of corn,—the barley measure containing 31 fills of the Stirling jug, and the wheat firlot 21¼. The jug is an exact Scots pint; the water it contains weighs 3 lib. 12 oz. English; temperature of the water 45; which, I think, answers exactly with the Report of the above Committee of Parliament, on 21st January 1618. They found the weight of the water, which filled the Stirling jug, to be 3 lib. 7 oz. of the French Troyes weight.

We find, accordingly, that a standard for the measure of corn was very accurately fixed 200 years ago; but how the variation of the measures in different counties took place, is not quite so certain. There is one circumstance worth notice, which may answer the question so far. Perhaps about forty years ago, a dispute arose between the buyers and sellers of corn in the county of Haddington, in settling which the Commission of the Peace interfered; and, after a full investigation, found that the wheat firlot contained three gills more than the Linlithgow standard, and the barley firlot six gills more than the same standard; and, upon full investigation, the Justices found the additional contents of these customary measures was necessary to give the Linlithgow boll at Edinburgh, after being carried there. I apprehend there is no better grain raised in Scotland than there is in East-Lothian; and, from the additional contents of the corn measure of that county, it may be conjectured that a similar regulation had been adopted perhaps over all the kingdom. Be that as it may, I apprehend an equalization of weights and measures will be attended with very great difficulty; and, if I am not mistaken, it would be no less difficult to have it observed when it came to be acted on. The variation of weights and measures may in some degree resemble provincial dialects, and local customs. These may change in a long period of years; but they never have changed so as to become the same in every county; and I believe they never will.

I am, Sir, Yours, &c.

A. H.

FOR THE FARMER'S MAGAZINE.

[The following Letters have appeared lately in a provincial paper, and are transferred to our pages at the particular desire of the writer, one of our regular correspondents.

Though we look upon all such prospective calculations with doubt, and think it would be quite unsafe to proceed in the operations recommended, with much reliance on the results being such as are here promised, yet it is impossible to deny the general fact, that much of our waste lands would give a more profitable return under plantations, than such of them as have been improved, always at a great expense, have ever done in tillage. It is therefore sufficient, that there is nothing very improbable in these estimates, or that they approach the truth, though they may not come very near it.]

Expense and Profit of Planting Waste Lands.

Calculations founded on data, incontrovertibly correct, must carry conviction to the mind more powerfully than any other species of argument. I therefore subjoin, for the information of your readers, the result of a calculation, with which I have lately amused myself, showing the value of the benefit which would accrue to the country, from the planting of waste and unproductive ground, in that part of Scotland north of the Spey; to which I beg leave, through you, to solicit the attention of the Landholders of that extensive portion of the kingdom.

In that tract of country, there are 109 parishes; in each parish, at an average, there is, *at least*, one square mile of ground fit for planting, but unfit for aration, and of little value for pasture. Supposing the enclosure of one square mile to be made in the figure of an exact square, the expense of enclosing one square mile, or 640 acres, would be, at 6d. per yard,

exactly - - - - - - -	L.176	0	0
But as, in general, no enclosure of this extent can be made of this figure, it is fair to add $\frac{1}{3}$ more to the expense, on account of the number of enclosures, and diversity of figures - -	58	13	4
On this supposition the average expense of enclosing, per square mile, would be	L.234	13	4
Supposing the ground to be planted with Scots firs, at the rate of one guinea per acre, for plants and planting, the expense per mile would amount to	672	0	0
The total expense of enclosing and planting one square mile, or 640 acres, would be	L.906	13	4
But allow for carriage, and other incidental expenses	93	6	8
Making the total outlay, at the utmost	L.1000	0	0

Brought forward	L.1000	0	0
On this outlay it is fair to allow compound interest, until the wood be so grown as to afford a return, or a certain value, to be estimated in the sale of an estate. In 30 years, it is assumed that the plantation would contain saleable timber, which would be more than sufficient, thereafter, to pay interest, and expenses of management. Till that period, however, compound interest, at the rate allowed by the banks, or 3 per cent., may be allowed. On this condition, the total interest on the above outlay would amount to - -	2427	0	6
Suppose the land, planted, to be worth, at an average, 1s. per acre, or 32*l.* per square mile, this sum, at 3 per cent. compound interest for 30 years, would amount to - - -	1522	8	0
To the above sums, there is to be added the amount at 3 per cent. compound interest, of forester's salary at 5*l.* per annum - - -	237	15	6
The total amount of expenditure, and of loss of rent and interest, by planting a square mile, would thus, in 30 years, amount to -	L.5187	3	6
But, at the end of 30 years, there would remain, after proper thinning, and allowance for casualties, on each acre of ground, at an average, planted as above, not less than 1500 trees, at the distance from each other of 5 feet 6 inches; and each tree would, at an average, be worth 6d., or 37*l.* 10s. *per* acre; consequently the trees on a square mile would be worth no less than - - -	L.24,000	0	0
From which deduct the amount of expenditure, and loss of rent, and interest, as before stated	5,187	3	6
And the trees growing on one square mile would afford a positive profit, or additional value, of no less than -	L.18,812	16	6

And supposing one square mile, planted as above, in each parish to the north of the Spey, with Scots fir only, the value of property, in that extent of country, allowing deduction of outlay and compound interest, calculated as above, would be enhanced 2,051,797*l.* 2s. 0d.

From experience it is ascertained, beyond doubt, that trees of the pine tribe would, in 20 years more, acquire a value exceeding double the amount of their value when 30 years old; and hence, without reckoning occasional sales of small extent, the

value of property in the north of Scotland might, by planting *Scotch fir only* to the extent above specified, be enhanced, in 50 years, about *five millions Sterling*.

Relative to the profit likely to arise from the planting of other species of forest trees, you shall hear again from, &c.

In my former letter I pointed out the extent of the advantages likely to arise from rearing Scots fir. I shall now proceed to show the benefits of which the planting of another beautiful tree, of the Pine tribe, may be productive in our country. The Larch (*Pinus Larix Linnæi*, and the Shittim wood of holy Writ), has been introduced into Scotland about a century ago. It was then reared as a tender exotic; but it is now well known to be particularly well adapted to our soil and climate, as may be seen in the majestic forests of the Duke of Athol, and in other innumerable instances. It is not excelled by any other production of the forest in beauty and utility. Its utility, however, is not yet fully understood by many of our landholders. It is, therefore, proper to state, that Larch timber is well fitted for almost every purpose of the carpenter, the ship-wright, and the cabinet-maker: it is susceptible of the finest polish, and retains any colour or varnish: it will not rot in fresh or salt water, or in mud: it is not liable to be moth-eaten, or destroyed by the ravages of any insect; and though it will slowly consume, it will not flame or rapidly burn in the fire. The bark, too, contains nearly as much tannin as the bark of oak.

Larch requires rather a better soil than Scots fir, but does not require so superior a soil as oaks. It thrives best in hollows, dells, banks of burns, and other sheltered situations where the land is not wet or spouty. In that district of Scotland to the north of the Spey, there are innumerable spaces of this description, of greater or less extent, which, on account of the steepness of the ground, are totally unfit for tillage, and but ill adapted for pasture, and where it would not be adviseable to plant any other tree than Larch.

Of this description there is at least, in each parish, 250 acres, which may be estimated at 2s. *per* acre *per annum*, in the natural state of the ground.

The expense of enclosing, in similar figures, would be the same as stated in my former letter, or for 250 acres - - - - - L. 91 12 9

But on account of the general longitudinal figure of the hollows on the banks of burns, there may be added to this estimate - - - 8 7 3

Making the total expense of enclosing L. 100 0 0

Brought forward -	L. 100	0	0
The expense of planting 250 acres, plants and planting included, at 35s. *per* acre, would be	437	10	0
	L. 537	10	0
Allow for carriage and contingencies -	62	10	0
Making the total outlay, at the utmost	L. 600	0	0
Allow compound interest on this sum, at 3 *per cent.*, on the principles stated in my former letter -	1456	4	0
Amount of rent, at 2s. *per* acre, for 30 years, at 3 *per cent.* compound interest - - -	1189	7	0
Forester's salary, as in the case of a square mile of Scots fir - - - -	237	15	6
Total amount of expenditure, and loss of rent and interest - -	L. 3483	6	6

At the end of 30 years there would stand, after allowing deduction for thinnings and casualties, 1000 trees on every acre; and, at the present prices, each tree would sell for 3s. 6d.; but suppose no more than 2s. 6d. *per* tree to be obtained, each acre would be worth 125*l.*; and the whole extent of 250 acres would be of no less value than - - L. 31,250 0 0

From which deduct the amount of charges and loss of rent, and interest, as above -	3,483	6	6
And the profit on 250 acres would be no less than - - -	L. 27,766	13	6

Hence it appears, that, in the short space of 30 years, the landed property in the north of Scotland, exclusive of the value of Scots fir, as estimated in my last, might be enhanced, by the planting of *Larch alone*, in situations not well adapted for any other rural improvement, to the extent of about *three millions Sterling*; and if the trees should be allowed to stand till they attain the age of 50 years, they would be worth considerably more than double this sum! It appears also, that the value of Larch, at the age of 30 years, is equivalent to about 3*l.* 14s. yearly *per* acre!

SYLVANUS.

FOR THE FARMER'S MAGAZINE.

Notes respecting the Conditions, as to Culture and Management, that may deserve Attention in framing Leases of Arable Lands. *

It may be premised, that as the object of all restrictions in leases, is chiefly to protect the fair interest of the proprietor in having the lands not deteriorated, and not by any means to fetter the well-meant ingenuity and industry of the tenant, they should be framed in such general terms as to admit all that diversity in the style of agriculture which circumstances render requisite, and as to which, the immediate occupiers, after a short trial, can probably best judge, and every liberty in the disposal of produce which shall not injure the farm; and, in order to prevent mistakes and disputes, they should likewise be as few and simple as possible. With such sentiments, and in relation to the different kinds of arable land, the following are submitted as leading principles; and, thereafter, such clauses as seem to be proper for insertion in the leases or tacks.

The principles have, in most cases, connexion with the kind and proportion of the several crops raised on the land, the succession or order in which they are taken, and their disposal—all of which particulars should be so regulated as to promote the fair interest of all concerned, the tenant, the landlord, and the public.

As to the produce, it may be proper to observe, that, universally of old, and in many districts lately, there were among husbandmen, only two great divisions or classes of crops recognised as distinct; viz. 1. Corn, or those species, such as wheat, barley, &c. which pass under the now common name of 'white crops;' and, 2. All other sort of produce, and that was in ancient times, and in most situations, the single one of grass or herbage: For pulse crops, such as peas, beans, tares, &c.—and cultivated herbage of clover and ryegrass—and cleansing or fallow crops, such as potatoes, turnips, &c.—were but recently introduced, and never, until very lately, extensively raised on the fields of ordinary farmers.

In modern and improved agriculture on the arable and usually tilled lands, corn or white crops still form one great and leading class; but, for the triple purpose of contributing to the support of live-stock, of furnishing manure, and of preserving

* We have received this able paper from a gentleman of the highest professional knowledge and experience.—Con.

the land clear of weeds, other species are raised in such proportions as are reckoned best adapted to the soil, climate, and other circumstances in the situation of the husbandman. These were, formerly, almost everywhere, and are even still, in many districts, known under the name of 'green crops,' in contradistinction to corn or 'white crops.' But as that mode of denomination, though comprehensive, was too loose, or not sufficiently discriminate (some species, better than others, answering one or more of the before-mentioned purposes), they came to be further subdivided, in order to be more readily distinguished in the practice of agriculture. Accordingly, most correct modern cultivators, instead of having only two general classes of crops, prefer arranging the different species which they raise under four; viz.

I. Corn or white crops; in which class, *flax* is placed with no impropriety.

II. Herbage crops and pasture.

III. Pulse crops, such as peas, tares, &c.

IV. Fallow crops, or cleansing crops.

Regarding each of these classes, there may be shortly hinted a few things.

I. Corn or White Crops.

1. During their growth, in the ordinary mode of culture, broadcast, the land has a tendency to become foul and infertile; and this, especially, if they happen to be of an inferior degree of luxuriance. How this takes place, must be readily understood on a little reflection. 1*st*, The land on which corn is raised is seldom positively clean or free from some surviving roots or seeds of wild plants, which spring afresh, and multiply during the growth of the cultivated species. 2*d*, From the open state of the land in the spring or autumn, when the corn is sown, the winged seeds of several plants, as thistles, &c. that have been borne thither by the wind, or have otherwise reached the surface, find an opportunity to settle and grow. 3*d*, Even seed-corn itself is but rarely pure, or wholly free from the seed of some weeds, which afterwards spring and spread during the growth of the corn, particularly if the crop be under luxuriant, open and scanty, or consist of few and small plants, so as not to repress the weeds.

To raise the corn in rows, by inserting the seed with a drilling machine, and to hoe the intervals by means of hand-hoes, or larger instruments, might contribute somewhat to preserve the land cleaner than otherwise. Yet still such a mode of sowing and cleaning is attended with a considerable degree of expense, which, in many cases, as after ley, or where the soil is

stony, might not be repaid by any advantage attending it. Where the ground is but slightly weedy, and of a superior degree of fertility, so as to yield rather a luxuriant produce, it may not be of consequence to incur the cost attending such a mode of practice; and where it is more strikingly foul, the hoeing necessary to make it duly clean, would require to be continued to such a late time in the season, as might not suit then with the state of progress in the corn; for it is apt to be retarded and rendered irregular in its maturation, by that operation being performed at an advanced period of its growth—a circumstance which forms the chief objection against the drilling and hoeing of corn, where any reliance is placed on the cleansing then given; though, for preserving land clean, which has not been permitted to become materially foul, the hoeing must have some effect in destroying weeds; and, if done early, a little before, or about the period of the natural 'stoling' or multiplication from the root, and never much later, it will not only not retard, but rather accelerate the sprouting and growth of the cultivated plants. Perhaps, in the case of a corn crop following pulse, or of corn following corn, (which last should be but a rare occurrence), the drilling and hoeing of corn, in land favourable for that mode of culture, might be more often tried than has yet been done, in many districts at least; though, wherever fallow or fallow crops, seasonably introduced and properly managed, form a part of the course of culture and cropping, the drilling and hoeing of corn can never become very requisite, or should not have placed on it great dependence. Without, however, submitting any further observations, it need only be remarked, that this recurrence to foulness, during the growth of corn, is so universally admitted, that all intelligent modern cultivators find it economical to forbear persisting in raising it; and they accordingly vary their mode of cropping, by having recourse to the culture of some other description of produce: And, besides the reason for relinquishing for a time the culture of corn, now taken notice of, there are others which connect, not merely with the degree of weediness thereby induced, but with the state of infertility then also supervening—as will be mentioned under the next head.

2. They do not afford so much manure as is necessary for their own reproduction; at least, the land on which they are raised, could not, by the application of the manure made from their straw alone, be sustained in the degree of fertility requisite for their after-growth, to an equal amount as at first: And, in in general, it may be stated, that they do not, on ordinary arable land, yielding about seven bolls, or forty-two bushels of

oats, per acre, return more than four tons of manure from that extent of ground—a quantity that seems insufficient, in ordinary situations and with common management, to preserve the soil in the state of fertility necessary to yield that amount of produce.

3. Corn, however, being everywhere in demand, finds a more ready market than most other sorts of produce, and becomes, therefore, with husbandmen in all common situations, a preferable object of acquisition; and accordingly, its culture is pursued by them as generally over the arable lands, and likewise as frequently from the same fields, as is judged safe and beneficial in other respects. In the experience of all husbandmen, however, it has been ascertained, beyond any doubt, that some other crops, besides corn, must be raised to support the fertility of the land, preserve it duly clean, and gain other advantages; for such other crops become useful in different ways.

II. *Herbage and Pasture.*—With relation to this sort of produce, it may be hinted, that,

1. During its growth, the land, if duly clean when sown with grass seeds, does not generally become fouler or more filled with weeds than it was before; unless, what would be improper, the ley be allowed to continue so very long as to admit the establishment and spread of wild shrubs, rushes, and moss. In many cases, however, even a considerable time before such worthless plants make their appearance, the herbage may have so far declined, as to render its continuance, or the duration of the ley, ineconomical, or comparatively unprofitable.

2. Pasture is understood, by most intelligent husbandmen, to preserve the land in nearly an equal degree of fertility during its continuance; for it is only particular loose soils, capable of being improved in their *texture* by becoming somewhat firmer during the ley; or else loose, foul lands, those filled with repent weeds, becoming both firmer and cleaner, by the weeds then dying, that are amended by long pasture; and often the loss incurred through its long continuance, may not be compensated by the expenses of tillage being thereby avoided, (if the tenant possess proper capital, skill and industry, and if the land deserve the name of arable), nor even by the increase in the produce of corn, gained on breaking it up at a very late period. Permitting land to lie unduly long in pasture, is improper management; but it is another extreme, and may be equally bad husbandry, to break up, and detain under tillage, more land than can be cultivated in a right way: And in high-lying and poor soils, the expenses of tillage may not be repaid by cultivated crops, especially in bad seasons, or with low prices, or without dexterous management in every respect.

3. Cultivated herbage, mown and consumed on the farm in the support of live stock, will generally be found to afford about fifty *per cent.* more manure than white corn crops grown on the same land. Hence, then, may be understood the propriety of raising that other sort of produce, to supply the lack of manure arising from the culture of corn, and also the great and irretrievable loss from the sale or disposal of herbage crops or of hay, where no extraneous manure can be had, or is procured in order to compensate for it.

III.—*Pulse Crops.*

1. By growing such species of produce, the cultivator may derive some advantages, and may, at times, be exposed to some detriment. They are beneficial, by affording considerably more manure than corn crops, and even a proportion, in general, when good and luxuriant, not less than cultivated herbage; and when luxuriant, they contribute to smother or repress weeds, the roots of which may have survived the cleansing tillage given the land at another period, or the seeds of which may have settled in the open state of the land, during the tillage preparatory to their being sown. Were such pulse crops to be drilled, and to receive some hoeing, especially in the early period of their growth, when it can be best done, they might prove more serviceable, and be not less abundant, than when raised by broadcast sowing.

2. Though benefit may attend the taking of pulse crops on a *part* of the lands of any farm, suiting them in respect to climate and soil, by their affording some valuable produce, and dividing better over the year the labours of the husbandman; yet, from their being liable to be much affected in their growth by the nature of particular seasons, the success of attempts to raise them is very uncertain. Many discreet farmers, in the best improved districts, have therefore relinquished the cultivation of such species, excepting on a small scale, as tares for horses during a part of summer. This rejection of pulse may not be wrong, but perhaps rather commendable, in respect nothing confessedly contingent should be adopted in good husbandry into any ordinary course of culture, especially where the raising of other sorts of crops, equal or superior in value, has more certain results. It ought also to be recollected, not only that a thin and poor pulse crop is of extremely small value, less by much in general than corn, but that the former, as readily as the latter, allows the land to become foul or weedy during its growth. Probably, for these or other reasons, of late years, all

prudent landlords have ceased to enjoin the culture of pulse crops, though they have not forbidden their being occasionally taken,—safely enough leaving that matter to the tenant's own discretion; permitting, however, the sale of nothing but their seed, excepting in the vicinity of towns, or in such other situations where extraneous manure may be readily obtained, and where, of course, all sorts of produce may be sold—provided always an equivalent supply of manure shall be brought back to the lands.

IV. *Fallow Crops*, otherwise called *Cleansing Crops.*

Fallow crops can be advantageously raised almost everywhere on dry lands that have been once rendered clean, and have thereafter not been so treated as to have become unduly foul again. Upon such they supersede the employment of naked fallows, or fallows without any crop or produce whatever for a year: And here it may be observed, by the way, that such fallows, though frequently employed, are not only expensive in tillage, at least rather more so than fallow crops seasonably, that is timely, introduced and properly conducted; but, allowing no produce to be gained from which manure may be collected, must lessen the fertility of the soil; and so they become, in another view, ineligible, if they could be avoided, or were not resorted to as the least of two evils, in the way mentioned. The chief species composing this great and important class of fallow crops, are potatoes, turnips, cabbages, rape and beans. Such are raised, most commonly, and very properly, in rows, and are cleaned both by horse-hoeing and hand-hoeing; and at times, or where requisite, by hand-weeding. The seed of beans, a species cultivated generally not in great quantities, and fit only for particular soils and a good early climate, may be allowed, as is usually the case, to be sold from the farm or possession; but all other fallow crops should be wholly consumed on the farm producing them, in order to afford manure, and so to enable the tenant to continue successfully the culture of corn, and keep and leave his land in proper condition, as to both fertility and cleanness. *

* It may be remarked, by the way, that a summer fallow may, in many, perhaps in most instances, be employed in the commencement of a course of good culture; and that, in several cases, it may even be occasionally introduced during its continuance. In the former, it may be found requisite for the following purposes—To have a better opportunity than otherwise of removing all wetness, stones, or other obstructions to perfect tillage; to render the land to a due degree

The value of fallow crops being now-a-days well understood, nothing further need be here added regarding them, excepting

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clean of weeds, and of a proper texture; and to get the surface so adjusted as to have no injurious inequalities, or any thing that can prevent the ready discharge of water from it, and the employment of the best mode of raising and collecting the crops from it. In the latter, it may be had recourse to where fallow crops could not, in comparison with it, be advantageously retained, from whatever cause. The circumstances that chiefly render it necessary or proper to retain summer-fallowing in the course of management, are those which arise from the character of the *climate*, and the nature of the *soil*, jointly. Wherever it is a dry, free soil, on a sound under-ground or bottom, as a loam well replenished with mould, or a sandy loam, or a gravel or sandy soil, or any other of a description suited to bear turnips or potatoes, then, after having been once made clean, it may, by fallow crops, seasonably employed and well conducted, be afterwards preserved in good condition, and fallows become unnecessary. But, wherever it is a loamy or clayey soil, on a retentive subsoil, or one apt to be wet, some difficulty occurs as to its application and management.

There are two things which especially merit attention in such kind of land. These are, the climate, and the degree of fertility in the soil itself. If the situation be high-lying and cold, then the only species, beans, and perhaps cabbages too, might be found unfit for cultivation. The unfavourableness of the climate might not permit beans to ripen, or become of much value as a crop; and cabbages, in a late, cold situation, whatever may be the degree of fertility in the soil, may not be eligible for culture: inasmuch as they may not continue through winter in good condition, and, at any rate, might then be with difficulty removed from the ground; and if they were at all of any material benefit, they would require to be made use of in the beginning of winter, a period so limited as greatly to diminish their value to the cultivator. Probably, therefore, in most clayey lands, situated 400 feet or upwards above the level of the sea, where the climate is cold and the harvest late, fallow crops will be found unsuitable. In lower lying grounds, again, it will be found that the soil must possess a certain degree of *fertility* before fallow crops of beans, or any other species adapted for a clayey soil, will so far answer as to become preferable to a summer fallow, with the total loss of a crop for the year. Where the land is poor, or the means of rendering it duly productive (manure namely) is not at hand, the bean or cabbage crop, or any other such, might prove comparatively of no great value; and, on such land, the seed of the wheat crop that succeeds them, would require to be pretty early sown, the better to ensure success from it. A fallow well conducted, will be more favourable for the timely sowing of the wheat seed, than tillage with and

that they generally afford about 50 *per cent.* more manure than corn crops do; that the dung gained from the consumption of the former, aids the conversion of the straw of the latter into good manure; and that some sorts, as turnips, eaten by sheep on light or loose soils, are the means of firming and improving such.

From the foregoing cursory remarks, the following conclusions may be drawn.

1. That where corn and those other classes of crops are raised on any arable possession, at no time should there be more than one half of it under the former or white crops; and in the case of poor lands, or such as would require, for their successful culture, to be further improved, or rather brought to a higher pitch of fertility (for the improvement of land may respect both due tilth, or a proper texture, and cleanness or freedom from weeds, as well as more fertility from richness of composition, or its materials being of a good quality), it would be preferable, because more advantageous for both landlord and tenant, to have even a less proportion than one-half under corn, perhaps not above three-eighths, or two-fifths, or two-sixths; and accordingly, many leases contain a stipulation to that effect.

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after beans, poor crops of which might not compensate for the injury that might be produced by the delay in the wheat sowing,—a consideration which will be admitted by those who understand the advantage derived from a summer-fallow, in giving a superior tilth to the land above what can be done with a fallow crop. Most probably, wherever a clayey or loamy soil is so poor as not to yield five Lothian bolls of beans (20 Winchester bushels) *per* acre, it had much better be cultivated by a summer-fallow than by any such fallow crop. If it possess such a degree of productiveness as to yield seven bolls, or 28 bushels, of beans *per* acre, then that fallow crop may take the place of a summer-fallow occasionally or more constantly; and it might do so almost constantly, if the fallow crop be employed at proper intervals, not at too distant periods, and if its culture be properly managed. Again, should the fertility of the land be above the degree mentioned, so as to bear nine or more bolls, or about 36 bushels of beans, or a produce of cabbages corresponding to the amount of beans, then such fallow crops may with advantage totally supersede the employment of any summer fallow.—Many husbandmen have relinquished, with great benefit on clayey soils, naked fallows for fallow (horse-hoed) crops; and others have done so without any gain, and some with direct loss: And both the errors in practice, and the discordance in opinion on this matter, must be referred to a want of due discrimination in the difference of cases.

2. As lands are liable to become foul under corn crops, in order to preserve them duly clean, two such should not be taken in close succession, unless certain circumstances occur to render a departure from the rule admissible. Some of the circumstances here alluded to, are the following. 1*st*, In the beginning of a lease, or in the first years of culture, it may be found requisite or convenient to take two white crops in succession, in order to bring a piece of land into a regular routine of management, or so as to form part of a field, or division, afterwards to be regularly cultivated. 2*nd*, Land, after being four years in grass, and three of these under pasture, may, in the case of certain soils, or with certain species of herbage, have its sod so tough, or difficult to break, in the second year after ploughing up the ley, as to be rather unfit for a fallow crop, and yet may be so clean as to admit a second corn one being taken with no material disadvantage, but rather with benefit. Here, however, every intelligent cultivator must be aware, that if two white crops be taken after grass, of three or even four years standing, there may often occur great danger of such a degree of foulness being thereby occasioned, as either to make an expensive naked fallow requisite, or to leave a cultivator exposed to the trouble of contending with weeds, and to the risk of losing from them in after years, from a fallow crop being insufficient to clean land so overcropped with corn. On account of the difficulty, and, in certain seasons and soils, the almost impossibility of cleaning land so treated, and the hazard of its being left foul and in bad order at the end of the lease, it might be no bad rule, that two such crops, in immediate succession, should not be raised in any of the last three or four years thereof.

3. For the purpose of obtaining the requisite supply of putrescent manure, it might be enjoined, as before hinted, that nothing should be sold any year from the possession but corn, or the seed of the crops, and live-stock or their products; the straw and fodder and green crops being consumed on it, and the manure thence produced being applied to the land; unless the tenant shall previously obtain (in writing) the landlord's consent to do so, or shall be liable satisfactorily to instruct, that in that year, or the two preceding ones, he has procured elsewhere, and expended on the land, as much putrescent manure * as the articles disposed of would afford, were they retained and used on the farm.

* Putrescent manure is so particularly mentioned, because lime, though highly useful on many lands, especially in the case of new soils, containing much vegetable matter unreduced, or otherwise not

4. For the further purpose of the lands being left, at the end of a tenant's possession, in proper condition as to cleanness, and with a convenient supply of herbage, it might be stipulated, that not less than one sixth part, or else, if more than a sixth, the customary proportion of the arable and usually tilled lands, yearly under fallow or fallow-crop, during the general period of the lease, should be under a fallow, or fallow-crop, in each of the last three years thereof; and not less than another sixth part, or the customary proportion under grass for mowing or pasture, should be sown in each of these years, with a proper assortment of good seeds of grass, clover and other herbage, with the first corn crop, after a fallow or fallow-crop, properly tilled and manured: For which seeds, sown in the last year, the tenant should be repaid their price, by the landlord, or incoming tenant.

From what has been now submitted, it would appear, that the following clauses may not be improper for insertion in the leases or tacks of arable farms, and may be nearly all that are requisite for protecting the fair interest of landlords.

'Further, the said binds and obliges himself and 'his foresaids, to labour and manure the lands hereby let 'in a proper manner, according to the rules of good husbandry; 'and not to run out or overcrop the same; and, in particular, 'to cultivate them, as far as possible, regularly, and not in 'small or detached parcels; and to observe, during the lease, 'the following modes of culture and cropping, in the several 'cases respectively; viz. 1. Of the best arable, and usually 'tilled fields, not to have, at one time, more than under a white crop, such as wheat, barley, oats, or rye; and not 'to take two such crops in close succession from the same land, 'except where it shall, immediately before, have been four 'years in grass, and three of these in pasture;—in which case, 'and provided there shall not, in the whole of such usually 'arable grounds, be at the time, or in consequence of do-'ing so, more than in white crop; and with this 'condition also, that immediately thereafter, or in the third 'year of the breaking of the same from grass, the land shall

prone to decomposition, and after being drained, if they be wet, yet can seldom supply the place of dung, or other putrescible manure; or, in an equal degree, and as durably, sustain fertility. Lime, marl, or any other form of the carbonate of lime, ought not, after the first applications of it to be relied on as a substitute; nor can it, in a prolonged or repeated course of culture, supersede the necessity of the most careful collection, and regular and judicious use of the other article.

'be under a hoed crop of turnips or potatoes, or any other 'similar crop, or else a summer-fallow, which hoed crop or 'fallow shall be duly tilled and manured, two white crops may 'be taken in a close succession, but not more than two: It be- 'ing further understood and conditioned, that no land shall be 'laid to grass, or grass and clover seeds sown, but when it shall 'have been cleaned and manured, with either a summer-fallow 'or a hoed crop in the previous year; and that, in the last year 'of the lease, there shall be, if not at least 'of such arable and usually tilled lands in grass raised from 'seeds sown in the immediately preceding year: 2. Of the 'arable lands, and such as are preferably fitted for grass, not 'to have less in grass than one half, and not more in white 'crop or corn than three-eighths at one time; and not to take 'two white crops in immediate succession, except in the case, 'and with the provision and conditions before expressed; and 'that, in the last year of the lease, there shall be not less than 'one-eighth of such lands in grass raised from seeds sown in the 'immediately preceding year: And it is hereby stipulated, 'that as the object of these conditions is not to restrain the te- 'nant in the fair use and application of the lands, but only to 'ensure their regular and due cultivation, he shall have the 'option, within the first three years of the lease, of chusing 'what particular fields shall be included in the one or other 'of the before-mentioned divisions or classes, and also whe- 'ther the arable lands shall be all under one or other of 'them, or under two separate classes, as before described; 'and that, failing his doing so in a writing to be delivered 'to the landlord, or his factor, before the end of the third 'year of the lease, then, and in that case, the landlord, or 'his factor, shall be authorized and entitled to make such 'selection or choice, in a writing to be delivered to the te- 'nant in the course of three months thereafter; and it is here- 'by declared, that from either of those selections by the one 'or the other party so made, there shall afterwards be no va- 'riation or departure in the before specified management of the 'several fields by the tenant, without his subjecting himself to 'the payment of the additional rent aftermentioned: And, 3. 'Of any inferior grounds in the farm, that have never yet 'been ploughed, or that are in the state of muir lands, or 'that are mossy lands only occasionally and rarely plough- 'ed, not to have more than one third under tillage at one 'time; and with this further understanding and condition, 'that no more of such shall be broken up for bearing corn than 'can be properly cultivated; and that what part of them is 'ploughed, either shall be manured with lime, or with a com-

'post of lime before breaking them up, or shall be manured 'with lime or dung before being laid to grass; and that not 'more than three white crops shall be taken from such land in 'close succession at their first breaking up; and at no other 'time but then, or after grass, shall more than one white crop 'be taken; and that, when laid down to grass, they shall be 'so kept for twice the length of time that they shall have been 'under tillage after the breaking up; or, at the option of the 'tenant, they may be broken up again at the end of four years 'of grass, and may be, during the remainder of the lease, cul-'tivated and cropped in the way stipulated for the second de-'scription of lands before mentioned: And the said 'obliges himself and his foresaids, to manage, cultivate and 'crop the farm in the last four as well as in the other years of 'his lease, conformably to the foregoing regulations, and to 'have and leave the proportions of land in grass in the several 'cases respectively, also conformably to these regulations, and, 'particularly, in the year immediately preceding the last one 'of the lease, to sow down properly the breaks or divisions that 'then fall to be committed to grass, and to have in hoed crop 'or summer-fallow those that fall to be so treated: And the 'said obliges himself and his foresaids to manage the 'farm, during the whole currency of the lease, in a proper hus-'bandman-like manner for the mutual benefit of parties; and, 'in order duly to sustain its productiveness, not to sell or send 'from it straw, hay, turnips or potatoes, but to consume the 'same on the farm, and apply to the land the manure thence pro-'duced, unless he shall previously obtain (in writing) the con-'sent of the landlord to do so, or shall be able satisfactorily to 'instruct, that he has elsewhere procured and has expended 'on the lands, in that or the preceding year, as much dung or 'putrescent manure as the articles disposed of would afford: 'And the said further binds himself and his fore-'saids, to pay five pounds Sterling of additional yearly rent for 'each acre treated or cropped differently from the rules and 'conditions before mentioned; which additional rent shall not 'be considered as penal, but as pactional, and not liable to 'modification, and shall be paid at the same terms with the ori-'ginal rent of the year or years in which such alteration takes 'place, with the like interest and penalty in case of failure: 'And it is hereby also provided, that the proprietor or incom-'ing tenant shall have right, without recompense, to sow grass 'and clover seeds with all or any of the white crops in the last 'year of the lease, the tenant being bound to harrow and co-'ver them in properly.'

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Case of Damages against a Landsurveyor, for his erroneous Report of the Value of an Estate.

SIR,

A case of some interest to agricultural readers, and especially to landsurveyors, was decided in the Court of King's Bench on the 9th January instant, of which a short notice may not be unacceptable. The facts that appeared on the trial, as it is reported in the newspapers, are the following. Mr Oakes the plaintiff, early in 1814, paid to Mrs Bourne 14,975*l.* as the price of an annuity of 1350*l.* for three lives, on the security of an estate belonging to her, situate near Market-Deeping in Lincolnshire, which was said to be let at the time to Mr Jones, on a lease for 12 years, of which 18 were unexpired, at the yearly rent of 1720*l.* To ascertain whether this security was good, the plaintiff's solicitor had previously employed Mr Wiggins, the defendant, a landsurveyor, to make a survey of the estate, who reported in writing that it was well worth the rent at which it was then let, viz. 1720*l.* Soon after, the tenant quitted the estate, which then remained untenanted for some time; and when at last a tenant was found, no more than 480*l.* a year of rent could be obtained for it, instead of the 1720*l.* Several surveyors were of opinion, that it was worth no more than 480*l.* at the time Jones held it at 1720*l.* The plaintiff now sought to recover from the defendant a compensation in damages, laid at 9000*l.*, for the loss he had sustained, in trusting to the report of the defendant as to the value of the estate, on the security of which he had advanced his money.

On the part of the defendant, it was proved that 23,000*l.* had been offered for the estate in 1811, and that the lease between Mrs Bourne and Jones, was believed, by the solicitor who drew it, to be a *bona fide* transaction; nor was there any direct proof of collusion between these persons. There was one very suspicious circumstance, however, which probably had its weight with the Court and Jury. Jones received on loan from Mrs Bourne 10,000*l.* of the money that had been paid to her by Mr Oakes. This debt, he said, was now extinguished, partly by a payment in money, and partly by goods consigned to her from the Mediterranean, where, after leaving the farm, he had engaged in mercantile concerns. However this might be, it was not alleged that the defendant Wiggins had any knowledge of the transactions between Mrs Bourne and Jones; or that he had ever received any more for his Survey and Report than

twenty guineas, that is, from the plaintiff's solicitor, who had employed him.

The Lord Chief Justice, in summing up the case to the Jury, is reported to have said, that 'he concurred in the admission 'that had been made, of the defendant's innocence of any cor-'rupt or fraudulent intention; but, in point of law, his Lord-'ship thought him liable for his negligence and inattention, 'to 'such an amount as the circumstances of the case would war-'rant the Jury in finding.'

The Jury found for the plaintiff. *Damages*—SIX THOUSAND POUNDS.

From the charge of 'negligence and inattention' in the Chief Justice's speech to the Jury, we must conclude, that the case has not been reported fully; for none of the witnesses speak to these points. One of them, Jones the tenant, gave evidence to the defendant's attention in surveying the estate, in which he was employed from between 10 and 11 in the morning, till a late hour in the evening. Its extent was 560 acres. But as it can hardly be supposed that an error in judgment would have been so severely punished, the defendant's case must have been more unfavourable than it appears to be in the Report of the trial. Such as it is, however, it may afford a useful caution to landsurveyors, if ever the *mania* of land speculations should return, and any of them be in danger of either taking the lead, or being hurried along with the crowd, in administering to its frenzy.

S.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Fisheries of the West of Scotland; and the Value of Sea-Shells as Manure.

SIR,

IN your Magazine (Number LXXVI, November 1818, p. 408), our highly respected friend, Sir John Sinclair, requests 'some experiments with powdered oyster and other shells,' and details the good effects of these, when applied as manure, upon the farm of Mr Coke at Holkham. Our esteemed friend might see that bruised oyster shells were used as manure many years ago, and with good success, were he to look into the history of Kilbride and Rutherglen, published by the late Reverend David Ure, minister of Uphall; a man with whom Sir John Sinclair, as well as his patron the Earl of Buchan, were well acquainted. Not having the book before me, I state only from memory, but

can be corrected from the book if I commit any mistake. I beg leave to premise, in general, that the worthy Mr Ure, after many years of patient and laborious investigation, laid open many facts respecting the mineral kingdom, which were not dreamt of before. In the mineral strata of Rutherglen and Kilbride, he discovered some remains of animals and vegetables which are nowhere now known to exist in a living state, and some which are peculiar to the Torrid zone. He may justly be said to have laid the foundation of the new science of Mineral Botany and Anatomy, which is likely to lead to very important results in Geology, and which Cuvier and others have since prosecuted with so much success.—But to the point in hand.—When detailing the very spirited improvements which Colonel Spence of Rutherglen was then making upon his estate in that neighbourhood, he states, that the Colonel brought oyster shells from Glasgow, with which he paved the circular paths in which his horses moved, when drawing up the coals by horse-gins from his pits. The shells were occasionally turned; and, after being sufficiently bruised by the tread of the horses' feet, they were removed, and fresh shells put in their place. The first object the Colonel had in view by this experiment, was to make a rich compost with these bruised shells, mixed with dung and rich earth, to lay at the roots of thorn hedges, with which the Colonel was then enclosing his estate. The thorns grew with amazing luxuriance; while other thorns, planted in soils formed from the decomposition of strata connected with coal, generally throw out lichens, become stunted, and die.

I was residing in the neighbourhood, while my worthy friend Mr Ure was making his mineralogical investigations, and had frequent opportunities of observing the progress of the Colonel's improvements. Having ascertained the value of these shells as a manure, he extended his plan, and had the roads paved with them, which led in to his coal-pits, and also around his farm-offices, where they were most exposed to the tread of cattle, and to the frequent passage of horses and carts. Thus the shells being soon reduced to powder, and mixed with the droppings of animals, were raked into heaps, and fresh quantities substituted in their place. They were found to be a most excellent manure for every purpose to which they were applied. I afterwards heard the Colonel had constructed a machine for bruising the shells; but this I cannot state from personal knowledge. I can, however, distinctly state, that the Colonel had ascertained, beyond all possibility of dispute, the great value of these bruised shells as a manure; and can appeal to Mr Ure's book as evidence of the fact.

The Colonel's coal-pits are about three miles from the city of Glasgow; and, when carts conveyed coals into the city, unless they brought back manure, they returned empty. There being little or no demand for oyster or muscle shells, they were an incumbrance to the keepers of oyster houses, rather than a source of profit. It is probable that the experiments of Colonel Spence may have altered the case, and excited a demand which did not previously exist. At that time there were neither oysters nor muscles used at Glasgow, but what were brought overland from the Frith of Forth. I think this was also the case with regard to partons and lobsters; but was certainly the case with soles and turbots. These were brought from Edinburgh by the coaches; were excessively costly; and only used at grand entertainments. They have since been found to swarm in the Frith of Clyde; and have been catched in such abundance, that I have heard of them being sold in the west from a penny to twopence the pound.

At the head of several bays, or arms of the sea, which intersect the West Highlands and Isles, I saw extensive beds of large oysters, uncovered at the low ebb of spring-tides. On sailing along some of these bays, I also saw that the bottom was paved with oysters for several miles, as far as the depth of water allowed them to be seen from a boat. I was also informed that oysters abound in many lochs, or bays, which I did not examine. Various other sorts of shell-fishes abound in these seas. Partons and lobsters, of most enormous size and delicious flavour, also abound. Ling, red and white cod, haddocks, and various other species of the finny tribes, occur in immense swarms. In fact, excepting a few herrings, the fishery of which is not prosecuted with sufficient vigour, a great proportion of the fishes of these seas are allowed to die of old age.

Fishing smacks, which are furnished with wells in their holds, convey oysters from the Frith of Forth, and partons, lobsters, cod, ling, &c. in a living state to London, from the whole eastern coast of Scotland, as far north as the Orkney and Shetland Isles. The oysters are raised from the bottom by drags, and are laid up in reservoirs in salt water, to wait the arrival of the vessels. The partons and lobsters are caught in large traps sunk in the sea, with a float to mark the place, which have a bait suspended in the centre, and are every way similar to the wire-traps for catching mice. They have their claws tied with a string, to prevent them from destroying each other, and from snapping off the fingers of those that handle them; and are then laid up in reservoirs, under salt water, until the welled smacks arrive. The cod, ling, haddocks, &c. are caught by

long lines thrown out from the welled smacks, which are chiefly baited by buckie shell-fishes, found in those seas. When removed from the hooks, they are immediately thrown into the wells, where, from a constant change of water, by the motion of the vessel through the sea, they are kept alive until they reach London. If any of them die, or become sickly, they are removed by a hook, and are either used by the crew, or salted. None of these smacks have ever penetrated into the seas contiguous to the West Highlands, or Hebrides, where they would find all the sorts of fish they are in quest of in much greater abundance, and of very superior quality. When the Caledonian Canal is completed, these smacks will have a much shorter passage into these seas than by the Pentland Frith. It would very much shorten their route, were a navigable communication opened from the head of Loch-Eil, to another arm of the sea which conducts into the Western ocean. This would save the circumnavigation of the point of Ardnamurchan; and it would only need to be made sufficient to convey herring busses and fishing smacks. The distance to be cut is only from one to two miles of low soft ground. Indeed, on glancing my eye over this space, it appeared to me, that the very extensive promontory of Ardnamurchan had originally been an island, round which the tide had flowed, from the Western ocean into Loch-Eil; and that this interruption had been formed by earth and rubbish washed down by torrents from the neighbouring mountains.

I conceive that the oyster scalps in the Frith of Forth have been too much fished, and that it would be highly expedient to give them several years of jubilee. Recourse might then be had to those immense stores of oysters in the West Highlands and Isles, which have remained undisturbed since the creation of the world. The city of Glasgow, now the second, in point of population, in the British Island, might be abundantly supplied with oysters, lobsters, and all other sorts of fishes, brought alive in welled vessels to the Broomielaw. Oysters are said to exist in some bays of the Frith of Clyde; and the Crinan canal opens a short passage to the West Highlands and Isles. It might be proper to try whether herrings, if carefully disengaged from the hang-nets, might not be kept alive in the welled vessels, and thus be conveyed to distant markets in a living state. Should this project succeed, these welled vessels might attack the herring shoals whenever they were observed in the deep sea, and thus find constant employment in conveying every species of live-fish in their season. In many parts of the West Highlands, where rivers or streams of water run into salt-water lochs, or arms of

the sea, there are excellent salmon fisheries, which are not much prosecuted, for want of a market for their produce. But the salmon that are taken might be kept alive in yares, or reservoirs, like the oysters, lobsters, &c., until welled smacks came round to receive them; and thus they might be conveyed to very distant markets in a living state.

You may ask what connexion all this has with agriculture, the improvement of which is the object of your work, without pretending to meddle with the improvement of the fisheries? But, I apprehend, that what has been stated has a most intimate connexion with agricultural improvement; and that, as our esteemed friend, Sir John Sinclair, deserves the public thanks for the many important services he has rendered to his country, so, in particular, for calling your attention to this great and inexhaustible magazine of manure, for increasing the fertility of land. I have no doubt but that Right Honourable Gentleman will cordially agree with me, that in order to support and extend our national greatness, a great part of our animal food should be derived from the sea, and that as great a proportion as possible of our people should be trained to the habits of amphibious animals. The refuse of the fisheries, if properly managed, might add a very great increase to the vegetable produce of the land. Oyster shells, the crusts of lobsters, partons, &c. and the bones of fishes, when bruised and reduced to small particles, make a manure every way similar in composition and effects to carbonate of lime mixed with a portion of dung. The shells of fishes derive their hardness from carbonate of lime in their composition; and the bones of animals are rendered hard by phosphate of lime. Each of them derive their tenacity from animal membrane, which, when it putrifies, has the same effects as the refuse of skins, hair, or wool. As the scales of oyster shells are somewhat flexible, I esteem them, when reduced to powder, a better manure than those shells which are more hard and brittle, since they seem to contain a much greater proportion of animal membrane. It is, however, unnecessary to enter into any discussion concerning them, as Sir John Sinclair's opinions of them, when applied as manure, are chemically correct. With regard to the crusts of lobsters, &c. and the bones of fishes, the hardening ingredients in their composition are partly carbonate of lime, and partly phosphate of lime. They also contain a larger proportion than the shells of animal membrane, from which they derive their tenacity, and a degree of flexibility. Bruised bones are known to be a most powerful manure; and, were the crusts of lobsters, &c. and bones of fishes, sufficiently reduced, they would have the same

effect as manure, as the powdered bones of land-animals that have been mixed with a portion of powdered chalk, or other carbonate of lime.

Thus, I conceive there are very strong inducements to adopt Sir John Sinclair's plan of bruising, not only oyster and all other large shells for manure; but that the crusts of lobsters, &c. &c. should be used in this way. In order that this species of manure may be in sufficient supply, it would be desirable that the fisheries should be extended, so as to comprise all the objects above stated, and many others which will naturally occur to those who are employed in them. Whether you adopt Colonel Spence's method of bruising these shells, by laying them in the way of horses and carts, or employ a machine to effect the purpose, there can be no doubt but the best consequences will result from them. Some years ago, our Highland Society published premiums for machines to bruise limestone for manure in the Highlands, where coal could not be procured. Had these machines been employed upon shells, they would have made much quicker despatch. All round our shores there are, here and there, extensive beds of shells, which are too large to make manure in their present state; but, were they reduced to powder, they would be better than any lime. In the Carse land near Stirling, I remember, when a boy, seeing beds of large oyster shells, on which the ploughs and harrows rattled as if upon stones. In other places, where water had cut deep into the carse land, great beds of shells were exposed, of unknown depth. Were these sufficiently pulverized, they would make better manure than any lime. When these shells are burnt, they make a beautiful white lime, well adapted for plaster, or whitewashing a wall. But burning destroys their animal matter, and hence renders them less fit for manure than when they are bruised. In other parts of the Carse near Stirling, at various depths below the surface, I saw great masses of shells, which preserved their shape; but were reduced to a soft pulpy mass, like soap, when handled. These would make excellent manure without any bruising. This is also the case with the basin of Montrose, which is occupied by a sort of clay or sea-sleech, which is thickly studded with oyster and various other shells, all of which are decomposed into a soft pulpy mass. Were the sea excluded from this basin, it would not only make land of extrordinary fertility, but would also be a compost midden, formed by nature, for fertilizing contiguous soils.

In addition to Mr Coke's experiments at Holkham with bruised oyster shells, it may be observed, that sea-shells which

have been reduced to small particles by the dashing and agitation of the sea, have been long used as manure all round the British shores. The quantities of this shell-sand, as it is called, which are accumulated in some places, especially on some of the shores of the West Highlands and Isles, are immense, and might be made a profitable article of commerce. Some of it would be much improved by an additional bruising, before it is applied to land. In one of the Hebridian Isles, I found the people had been long in the practice of bringing sloop-loads of shell-sand from a place on the mainland,—a distance, going and coming, little short of 200 miles. They had immense quantities of better shell-sand, and reduced to smaller particles, within a few hundred yards of the land to which they were applying that which they brought from the mainland. The same sort of fine powdery shell-sand occurred in almost every creek and bay around the island; and in some places it was blown up into great hills, or was spread over considerable tracts of the island, forming a sort of sandy downs, with stunted herbage. But the people of this island entertained the greatest abhorrence against their own sand, because nothing would grow upon itself; and they showed places where it had been blown so as to overwhelm and destroy some tracts of land which had been formerly under cultivation. I strongly advised them to make use of their own shell-sand, which, with very little trouble or expense, might enable them to extend cultivation in all parts, from the circumference towards the centre of the island. When I afterwards reached the place on the mainland from which they had been conveying this shell-sand to the Isles and to other distant places, I found the people there were perfectly at a loss to account for the conduct of those who came so far for what they regarded with abhorrence. They showed me spaces where they had planted potatoes, oats and barley, upon this shell-sand, both with and without sea-weeds or dung, which had sprung, indeed, but had afterwards withered and died. They also showed patches of cultivated land, which had been wholly destroyed by the blowing of this sand. They hence concluded, that nothing could be more destructive to vegetation than this detested sand. Some appeared to think it might do good to land at a distance, but would effectually destroy the land where it was thrown from the sea. I gave them the best advice I could, which they did not seem much inclined to adopt, having what they esteemed positive proof of the destructive properties of this sand.

Were our Highland mountains that are within reach of these sea-shells, to be drained where necessary, as has been done

with many of the sheep-walks in the south of Scotland and north of England, and then top-dressed with these shells on all their sloping declivities, they would soon be capable of sustaining double, triple, or even quadruple the stock which is now kept upon them. In some places where this shell-sand may be too remote, there are immense quantities of clay and stone marl. In the island of Skye there are vast mountains of the best limestone and marble, and also amazing quantities of rock-marl, resembling soft chalk. There is enough of the latter to fertilize the whole of that island, where it admits of improvement, with a great superabundance, which would bear the expense of conveyance to distant places. In Skye there are also an immense number of mineral strata, which consist of entire sea-shells, cemented together by a small intermixture of bituminous clay. These would make proper subjects for bruising.

Your correspondent, Pol-Œconomicus Redivivus, need not be alarmed at my proposing to extinguish his favourite Highland heather by top-dressings of shells or marl; because, in addition to the whins and broom which I recommended in my last as a substitute for heather, the smooth sloping bases of the mountains, after being top-dressed in this way, might yield excellent hay in summer as a resource for the sheep in winter. I conceive our Highland Society should turn their attention towards draining and top-dressing the Highland pastures, as well as to furnishing them with whins and broom. What is here recommended is not from theory; for, at one period, I actually drained with the plough, aided with the spade where necessary, wet sheep moors, and top-dressed them with lime, with the best effects. I could also mention gentlemen in the West Highlands who top-dressed some of their sheep hills with shell-sand, which soon extinguished the heath and coarse herbage, and raised such a flush of nutritive grasses and white clover, that the hills appeared from a distance, in summer, as if sprinkled with snow.

Dunichen, Forfar,
5. Jan. 1819. } JAMES HEADRICK.

FOR THE FARMER'S MAGAZINE.

On the Effects of the Cottage System.

[From the Supplement to the Encyclopædia Britannica.—Vol. III. Part II.]

A great part of the misconceptions and erroneous opinions to be met with respecting the cottage system, appear to have ori-

ginated in hasty and premature attempts at generalization, founded in a few limited observations of its local effects. But first appearances are, in this case, of all others the most fallacious. The effects observed to result from the partial granting of cottages, furnish no clue to trace the ultimate consequences of their general introduction. These effects are, on the contrary, of an entirely different character, and are eminently calculated to mislead. Were cottages, with small pieces of land attached to each, let at a moderate rent to a few of the most industrious labourers in the best cultivated districts of Great Britain, there can be no doubt but that the circumstances of those individuals would, in the first instance, be ameliorated. They would acquire these possessions with previously acquired habits of industry and economy. When their own little farm did not require their exertions, they would be able to find employment in the more extensive farms in their vicinity; and, in return for their labour, they would be able to procure the ploughs, harrows, and carts of their neighbours, to assist them in their different operations. The labour of such men would thus be employed with nearly the same effect that it would have been, had they continued as farm-servants on estates managed in the first style: It is even probable, that their exertions would at first be rather increased, inasmuch as a part of the labour necessary for the cultivation of the small farm would be executed at extra hours, and after the ordinary day's labour had been performed.

But the truth of this statement is nowise inconsistent with the truth of the principles we have been endeavouring to establish. The *ultimate* and necessary consequences of a minute division of landed property, deserve to be as much attended to as those which are only immediate and transitory.

In the *first* place, then, it is extremely probable that the small farmers would, ere long, become disgusted with that life of unremitting exertion which they had formerly led. It is natural to suppose, that, having attained to a state of comparative independence, and not being under the *necessity* of constantly employing themselves, occasional intervals of relaxation would take place. However small we may conceive the possession of the cottager to be, he would still have some species of produce to dispose of. A habit would, in this way, be formed of going to market, and time would be lost in the adjusting of trifling bargains. 'Nothing,' as Mr Young has justly remarked, 'can 'be more absurd, than a strong healthy man walking some 'miles, and losing a day's work, in order to sell a dozen of 'eggs, or a chicken, the value of which would not be equal to 'the labour of conveying it, if he were properly employed.'

Such habits, too, are almost sure to lead to dissipation. The small farmer must have his porter and his gin as well as the extensive farmer. It is the want of time and opportunity, still more than the want of money, that prevents a hired labourer from having it in his power to ape the conduct of his employers. The circumstances, too, which distinguish a farm-servant from a farmer, are much better defined, and more easily appreciated, than those which distinguish a small farmer from an extensive one. The latter are both placed, if we may use the expression, in the same cast; and hence, the extravagances of the small farmer, though equally hurtful to himself and his family with those of a labourer, are much less an object of animadversion in the neighbourhood. They clash less with popular prejudices, and with the received opinions of mankind; and there is therefore a greater probability of their being more indulged in.

If these consequences of the introduction of small farms should not become obvious in the lifetime of the first occupiers, they would certainly discover themselves in that of their successors. Not having undergone the same rigid training with their fathers, the habits and prejudices of the two races would be essentially different. And the character of the industrious labourer, which had predominated in the first, would, in the second, give place to that of the half employed petty farmer.

But, in the *second* place, it is obvious, that the beneficial effects observed to result from the first introduction of small farms, depend almost entirely on the occupiers of these farms or patches of ground having it in their power to employ themselves at other work when their labour is not necessary at home. Now, with a generally extended cottage system, this could not be the case. Where *all* the farms are small, none would require the labour of extra hands; nor would they afford their own possessors constant employment, except, perhaps, during seed-time and harvest. Nor is it to be imagined, that the leisure of a poor cottager, thus situated, should have any thing in common with the leisure of an extensive farmer or capitalist. The cottager is inactive, not because he has already realized an ample fund to support him in a state of comfortable independence, but he is inactive, because no exertions can better his fortune, and because there is no demand for his labour. No man, it should be recollected, loves either exertion or industry for their own sakes. All have some end in view, some object to effect; and the accomplishment of which is to compensate for the toils and privations to which they may at present submit. But a small farmer is almost entirely cut off from all hope of rising in society. No person possessed of capital would ever think of

embarking in such a hopeless concern; and, after supporting a family, no small farmer, originally without capital, would ever be able to accumulate any. As it is impossible for him to escape from poverty, the cottager naturally becomes indolent, careless, and relaxed in his habits. His opinions of what is necessary to his comfortable subsistence become degraded; and he ultimately sinks into a state of apathy, and of sluggish and stupid indifference.

That such is really the state of society in every country in which landed property is divided into minute portions, is abundantly certain. But we have no occasion to go far from home to seek for an exemplification of its effects. We have only to turn to Ireland. The cottage system has there been submitted to the test of experiment; and it is proper that the result should be generally known.

In our inquiry into the principles of the Corn Laws, we have endeavoured to show how the granting of high bounties on the exportation of corn from Ireland, in 1780 and 1784, contributed to the extension of tillage, and to the breaking up of the pasture grounds, in that kingdom. But the want of capital, and the consequent impossibility of procuring tenants capable of taking large farms, obliged the proprietors to divide their lands into small portions. Large tracts of old grass lands were ploughed up, and let in farms of from ten to twenty acres; and in this way the stimulus, intended to act as an incitement to agricultural improvements, has had a much more powerful effect in causing the subdivision of farms, and in increasing the merely agricultural population of the country.

Mr Newenham's authority is decisive as to this fact. 'Large 'farms,' he informs us, 'of from 500 to 1500 and 2000 acres, 'once so common in Ireland, hold actually no sort of proportion to farms of from 10 to 30 or 40 acres. In the county of 'Down, Mr Dubordieu says, that farms run from 20 to 40, 50, 'and, in *some instances*, as far as 100 acres. Such is the case 'in most other parts of Ireland. For several years past the 'landlords of that country have been much in the habit of letting their lands in *small divisions*. Besides this, the *cottar 'system*, or the giving a certain quantity of land as an equivalent for wages, prevails throughout most parts of Ireland. In 'fact, *upwards of four-fifths of the Irish people are subsisted 'chiefly on the produce of the land which they hold.*' (*Inquiry into the Population of Ireland*, p.270.)

Every part of Mr Wakefield's valuable work on Ireland, abounds with interesting information respecting the *effects* produced by this minute division of landed property. Our limits,

however, will only permit our extracting the following passages.

When noticing the state of landed property in the county of Kerry, Mr Wakefield observes—'Few persons here occupy 'such a quantity of land as to oblige them to employ a labour-'er; it is not, therefore, customary for people to go from their 'own homes to work, and, indeed, none but those who have 'taken very dear farms, and experience the necessity of pro-'curing a little ready money, ever think of it. This system, 'considered in a public point of view, strikes me as being ex-'ceedingly injurious. A country occupied by inhabitants whose 'ambition is so limited, that they have no desire to push their 'industry beyond that indolent exertion which procures them 'the bare necessaries of life, must remain without improve-'ment. Such people cannot be said to *live*, but to *exist*. To 'supply their animal wants is the chief object of their labour; 'and if they can raise money enough, by the sale of butter and 'pigs, to pay their rent, all their care and anxiety is ended. 'The existence, however, of these wretched beings, depends 'entirely on the season; for if their potatoe crop fails, they are 'in danger of being starved. This mode of life, instead of ele-'vating the moral faculties in the slightest degree, tends only 'to depress and degrade them. It becomes the parent of idle-'ness, the worst evil that can afflict human nature; and that 'habit, if it spreads or becomes general, must lead to national 'poverty, and even want, with its concomitants, vice and mi-'sery.' (*Account of Ireland*, vol. I. p. 262.)

'In Fermanagh,' says he, 'whether it arises from habit, or 'a natural propensity to indolence, the people do not rise until 'a late hour in the morning, and the cows are not milked till 'noon. There being but a poor market for the produce of the 'earth, *little encouragement is afforded to industry*. They there-'fore seldom think of turning their time to the best advantage.' (*Account of Ireland*, vol. II. p. 745.)

In his chapter on Rural Economy, Mr Wakefield makes the following *general* observations. 'The Irish cottar's only anxi-'ety is, that the butter and the pig sold, and the labour given 'to his landlord, may be equal in value to the payment which 'he has to make. When satisfied on this head, his mind is at 'rest; he has no further wants; and neither he nor his family 'consider labour as of any importance to their happiness. The 'potatoes are left in the ground till the commencement of frost 'makes him apprehend that his food may be locked up in the 'earth; and though very great inconvenience has been occa-'sioned by this negligence, the repeated experiment of the bad

'result arising from it, has not yet been able to induce the peasantry of Ireland to adopt a better method. It is very common to hear persons of higher rank observe, when a very early frost takes place, that "it is a fortunate event, as it will oblige the *poor* to dig up their potatoes;"—(*for the* POOR *and the* CULTIVATOR OF THE SOIL *are here synonymous expressions;*)—'and, of course, they will be saved before a severer one sets in.' (*Account of Ireland*, vol. I. p. 517 & 583.)

It is not necessary to quote authorities to prove the miserable state of the hovels in which the cottagers reside. Notwithstanding his prejudices in favour of the state of society in Ireland, Mr Newenham admits, 'that a *bedstead* is a luxury which 'a great majority of the Irish labouring poor are strangers to. 'As for clocks, warming-pans, frying-pans, tea-kettles, cups 'and saucers, &c. &c. which we find in every cottage here, I 'believe it is unnecessary to say, that they never constitute a 'part of the poor Irishman's furniture.' (*Inquiry respecting the Population of Ireland*, p. 280.)

We shall close these statements with an important extract from Mr Curwen's late work on Ireland. This experienced agriculturist travelled through the greater part of it in 1813; and after having carefully inquired into the condition of the small farmers and cottagers, gives the result of his investigation in the following terms. 'The size of farms, from 15 to 30 acres, 'would give an average of about 22 or 23 acres to each. Portions of these are again subset to cottars, whose rents are paid 'by labour done for the tenants; from whom they sometimes 'receive milk, and some other necessaries. These running accounts are an endless source of dissatisfaction, of dispute, and 'of contention at the quarter-sessions. *In some of the more populous parts of Ireland, there is supposed to be an inhabitant for 'every acre, while the cultivation of the soil, as now practised, 'does not afford employment for a third of that population.* In 'the north, where the linen trade has been established, the 'lower classes are weavers, which gives them a great superiority over the southern districts. The labour on the highways 'and great roads, for which such large assessments are made 'on the counties, afford, for a portion of the year, a great 'source of employment.

'The minute subdivision of lands among these occupants, 'is attended with many serious evils. The rents of these small 'sublet parcels become so high to the actual cultivators, as to 'preclude all profitable return from their labour. It affords 'too great a facility to marriage. The population becomes increased beyond the capital of the country employed in hus-

'bandry, and the supernumerary individuals are compelled to 'subsist on the produce of others' labour, to which they have 'no power of contributing. The aggregate number of horses 'is greater than would be required, if the estates were distributed into moderately sized farms; while the want of farming 'buildings, besides other disadvantages, prevents the accumulation of manure.

'The labourers, with few exceptions, are all married. The 'farmers have no hired servants, of either sex, residing in their 'dwellings;—this is another serious evil arising out of small 'farms. Ireland, which in extent is nearly equal to one-half of 'Great Britain, does not probably employ one-tenth of the agricultural servants.

'The buildings on every farm being erected at the expense 'of the tenant, are necessarily on the most limited scale, seldom 'more than a cabin, and this insufficient for the children of the 'family beyond their earliest days. As the children grow up, 'they are compelled to seek another establishment for themselves, and to hazard every consequence that may ensue. Alternative they have none; the interests of all parties suffer; and 'it would be for the advantage of the whole community, to promote a *radical reform* of the present disreputable system.'

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Notes of a Lecture on the Parts of the Horse.

SIR,

A PLAN having been formed by W. Scott, Esq. of Parton, for establishing an Academical Institution in Edinburgh, at which Lectures should be given on the Arts and Sciences, and, among others, on the Veterinary Art; I was induced to attend the Veterinary Lectures, which commenced in Freemason's Hall, Niddry Street, on the 12th November. They were delivered by Mr Dick, a veterinary surgeon of this city. In one of them, Mr Dick demonstrated from a skeleton, those points which are advantageous or disadvantageous in horses, for the different purposes for which they are employed. I think some of his remarks may be interesting to many of your readers, and useful both in the purchase and breeding of horses; and I therefore send you the following Notes, which, I believe, contain the substance of that lecture, for insertion in your Magazine. W.

It is a common saying, that there are good horses of all shapes; and hence it has been affirmed, that there is no advan-

tage in attending to the shape of the horse. We often see two horses of the same shape very different in goodness. Some gentlemen contend, that a large head is no disadvantage to a horse. It is true, many good horses have large heads; but, take it in the abstract, horses' bones cannot be too small; and this applies particularly to the head, which acts as a weight at the end of a lever. There are other parts of the head of importance, independent of its size. The nasal bones, or bones of the nose, should stand rather prominent, so as to allow a large nostril. Dishfaced horses, that is, when the bones are depressed, are defective,—as, from the size of the nostril, breathing will be more or less easy. The finer the skin, and the less flesh about the head, the better. The eye should be lively, and not sunk; the head well set on, fine at the throat lash; in which case there is more extensive motion; and, in bridling up, there is not so much obstruction to breathing. The neck should be light,—for a large neck renders a horse only fit for harness. A long neck is neither good for wind nor speed; as the air is longer in getting into, and from the lungs, the breathing will be more difficult;—except for speed, the neck cannot be too upright. A light upright neck is a most important point in hunters, chargers, and hacks; but, for draught, it is not so essentially necessary. In high necks and withers, the *ligamentum colli*, or fix fax of the neck, supports the weight, and allows the muscles to act with the greatest power when the horse trips. Horses of this description may have low action, but they seldom come down; while horses with low necks, and high action, are very liable to stumble and fall. When a stranger mounts a horse, the groom generally tells him to keep his head well up, to prevent his stumbling. This not only relieves the weight of the head and neck, but Dr Barclay has demonstrated, that, by raising the head, you change the fix point of a muscle common to all quadrupeds, called the *levator humeri*, or common muscle, which raising or pulling the arm forward, extends the base on which the animal moves, upon the stability of which will be the security of the superstructure. The back, from the withers to the loins, can hardly be too short; the withers should be long, as they act as levers in supporting the neck and head, and also as levers to the shoulders. The loins should in all cases be broad, and where this is not the case, the haunch-bones appear high. This is very frequently to be observed in Irish horses: but the fault is not in the haunch-bones; they can never project too much, as they are levers to muscles;—the defect in these horses is in their loins being too narrow. The make of the chest is very important. A large chest is an advantage to all animals, as it

allows them to take in a greater quantity of air, and by that means the necessary change will take place in the blood with a less frequent, and of course less oppressed respiration. Nature has adapted the shape of the chest of animals to the purposes for which they seem to have been intended. In the cart-horse, and cattle, the ribs can hardly be too circular; as animals with chests of that description seem all disposed for weight and fat; but for speed, it is necessary for the chest and ribs to be of a different construction. The first four ribs of the race-horse are very little arched; but the chest should be deep, and the ribs well arched, behind the fore-leg;—this we find is the case with the hare, deer, greyhound, &c. The pelvis, or hind-quarters, cannot be too long, that is, from the haunch-bones to the point of the hips; as, according to the length of the muscles and levers, will be the strength of the animal, and the extent of his action. Horses that fall down, or slope much in the hind quarters, are deficient in muscle, and are not only short but weak; as they want the mechanical advantage of long levers. In the hind extremities, the projections of the thigh bone cannot be too great. As to the bulk and weight of the bone, there is always enough. Horse-dealers are sometimes good practical judges; but the reasons they give for a horse being good, are erroneous, when they say he has great bone. If the bones support the weight of the animal (and you do not find that bones break or bend in the horse), all that is extra, is superfluous weight to the animal:—the bones in the human subject do bend, but this is not the case in the horse. Perfection consists in small bones, long levers, long processes, and great projecting points; for the smaller the bones, the stronger will be the animal, in regard to action; and the best actioned horses have not a great deal of bone upon dissection. Where the bones are actually large, for instance, from the knee and the legs round, dealers would say they are weakly horses,—yet it is all bone; in such legs you see no sinew, no suspensory ligament, no small metacarpal bone, as you will see in a well-formed leg, where the muscles are large, the sinews large, and the bones small;—large bones and small muscles are a great imperfection. The length of the horse, from the hip-joint to the stifle, and from the stifle to the hock, cannot be too great, nor from the hock to the foot too little, as he will get his haunches well under him. There is no point in the horse of more importance than the hock, for on it depends the strength and progression of the animal: It must neither be too straight, nor too much curved, as either of the extremes is bad. When the animal is standing in the proper position, his toe should be placed in a line exactly

under the stifle, or patella; and, in that position, grasping the hamstring with the hand, there should be nothing found between the fingers and thumb but skin. A straight hock is weak, from its point, which is a lever to muscles, being too short; and these hocks are always round. The shoulder is a most important point in all horses. It should be large, broad and light, to allow extent of surface for the attachment of muscles, and cannot be situated too obliquely, as, in that position, it gives greater scope to the action of the muscles. The worst shoulder is a short upright one. People are apt to blend the withers with the shoulders; and, if the withers are long, it is said the horse has a good shoulder. But this is not always the case; for he may be fine in his withers, and have a bad shoulder,—it may be upright. A horse should be deep, from the withers to the point of the shoulders: and from this to the elbow, he cannot be too long. When the elbow inclines too much into the chest, he has bad action, as, in this case, the elbow is short. These horses turn their toes out, and are liable to cut. The arm from the elbow to the knee cannot be too long, nor the shank from the knee to the fetlock too short. The knee-joint must be wide, and should appear rather narrow in front. Round knee-joints are bad. The more the pisiform bone projects backwards, the better: it is a lever to the muscles of the arm. The pastern must have a proper degree of obliquity; and the length is of more importance before than behind. Should all points be good, and the pasterns long, and the toes turned out, the other good points almost go for nothing. Long pasterns are weak; but, if too short, they are liable to concussion. From the great attention that has already been paid to the breeding of horses in this country, our armies have been supplied with cavalry superior to that of all other nations; which was particularly conspicuous in the splendid victory at Waterloo.

FOR THE FARMER'S MAGAZINE.

On the Management and Produce of the Dairy.

[From the Supplement to the Encyclopædia Britannica, Vol. III. Part II.]

Butter-Dairies.—This class is not confined, like the former, or new milk dairies, to the immediate neighbourhood of towns; yet the principal ones are situate at such a moderate distance, as to allow of their produce being sent thither in a fresh state. Butter is made, indeed, in every part of the country; but it is,

nevertheless, the chief object of a great number of dairies, which therefore form one leading division in this department of husbandry.

It does not appear that any particular breed of cows, as in milk dairies, is selected as most suitable for dairies of this description; nor that their food and general management differ materially from those of cows kept for other purposes. Even in dairies of this class, butter, though the chief object, is not one so exclusive as to prevent the cows from being employed as a breeding stock. With this last view, they are almost of every different variety, according as one or other breed is considered the most profitable, upon the whole, in different situations. They are commonly the breed of the district where the dairy is situate, and not, like the short horns kept in milk dairies, brought from other quarters, with a particular view to this description of produce.

Butter is made either from cream taken from the milk, or from the milk itself. Of the mode of preparing butter from cream, and also of the districts where this branch is extensively carried on, a full account has been given in the Encyclopædia. But the practice of churning the whole milk, which now prevails to some extent in the western counties of Scotland, remains to be described. Mr Marshall, in his Review of the Original Report of Cheshire, printed in 1794, mentions it, in 1810, as a singular variety in the English butter dairy, that in Cheshire the milk and cream are churned together, without any previous separation.

The practice of churning the whole milk has been thus described. The milk, when drawn from the cow, is placed in coolers about three inches deep, and stands for twelve or twenty-four hours. When the cream has risen to the surface, the coolers are emptied into a stand-vat, where the milk remains till churned. If another milking is ready to be placed in the stand-vat, before the former has begun to sour, the second also may be put into it; but if the first has soured, or is approaching to it, such admixture, it is said, would lead to fermentation, and injure the milk. The utmost care is always taken not to allow the *coagulum* of the milk in the stand-vat to be broken, till it is about to be churned. If the house be of a proper temperature, the milk may stand from a day to a week without injury, till as much be collected as it may be convenient to churn at a time. No milk is ever churned till it has become acid and coagulated.

The operation is generally performed in plunge-churns of considerable size; some of them, containing 120 Scots pints, are worked by a single person; and when machinery is applied, 150

or 200 pints are commonly churned at a time. In a few minutes after the operation begins, as much warm water is poured into the churn, as raises the temperature of the milk from 50 to 55 degrees of Fahrenheit (being that of the dairy-house), to 70 or 75 degrees; the churning always going on while the water is slowly poured in. The milk will admit of a greater proportion of water in autumn, when it is rich, than in spring, when it contains more serum. Probably one pint of water may generally be added, one way or other, to every five or six pints of milk in the early part of summer, and one to four or five in winter. A certain proportion of water is considered indispensable, both for raising the cream at first, and for facilitating churning; but it is alleged, that too much is often employed, for the purpose of adding to the quantity of the butter-milk. When milk is either over-heated, or churned too hastily, the butter is always soft, and of a white colour. From two to three hours is a proper time for performing the operation of churning.

In Renfrewshire, where nearly all the milk is employed in the manufacture of butter and butter-milk, cows are sometimes hired by the year, at 13*l.* or 14*l.*

The average produce *per* cow of the butter dairies of England, according to Mr Marshall, is three firkins of 56 lib. each, yearly. In Buckinghamshire, the rate is higher,—a cow yielding 5 lib. *per* week, for 40 weeks, or more than 8½ firkins. The annual consumption of London has been computed at 50,000 tons, or two millions of firkins, which, at the rate of three firkins *per* cow, is equal to the butter produce of 667,000 cows. This would be in the proportion of nearly a hundred weight to every individual in the population, which is probably much above the truth; but the demands for the shipping, and other purposes, must be very considerable.

The packing, salting, and selling of butter, are regulated by statutes, of which the most important is the 36th Geo. III. c. 86. By these it is enacted, That every vessel made for the packing of butter, shall be marked with the maker's name and place of abode, and its own weight; and shall be of a size to contain 84 lib. called a tub, or a firkin to contain 56 lib., or a half firkin of 28 lib.; and several penalties are imposed for the breach of these and a variety of other regulations for the prevention of fraud.

The manufacture of butter leaves a large proportion of the milk, applicable to other purposes. When the whole milk is churned, the residuum is called butter-milk, which is sold in towns at a penny per Scots pint (more than two English quarts); and when delivered in a cleanly and pure state, it is esteemed a wholesome and nutritious article of food, by the labouring

classes. If the cream only is employed, there remains skim or sour milk, which in some places, as in Buckinghamshire, where it is reduced by repeated skimmings for cream, is given to hogs; but it is more commonly made into inferior cheese, yielding whey as the last product for the feeding of hogs.

Cheese Dairies.—The practice of the principal cheese districts in England having been described in the Encyclopædia, we have little more to add under this head, than a short notice of the cheese dairies of the west of Scotland, where the manufacture has been brought to much perfection, and is carried on to a great extent. The cheese of this district is known by the name of *Dunlop cheese*, from a parish in Ayrshire of that name, where it is said to have been first made; but dairies of this description are now spread over all that and the adjoining counties;—few of them are large, but the total number of cows is considerable. One individual had lately more than a hundred.

When such a number of cows are kept as to yield milk sufficient for a cheese of tolerable size at every milking, the milk is passed through a sieve (provincially termed a *milsey*), to remove impurities, into a boyne or vat, and formed into curd, by a mixture of runnet. As milk requires to be coagulated as nearly as possible at its heat when drawn from the cow, and as it must cool somewhat in milking and passing through the sieve, it is necessary to pour a quantity of warm water into it in the curd-vat.

Where the cows on a farm are not so numerous as to give milk sufficient to make a cheese every time they are milked, the milk is stored about three or four inches deep in coolers, till as much is collected as will form one of a proper size. When the cheese is to be made, the cream is skimmed from the milk in the coolers, and, without being heated, is passed through a sieve or drainer, along with the milk which is drawn from the cows at the time, into the curd-vat; and the skimmed milk, being heated so as to raise the temperature of the whole mass to about the heat of new milk, and also passed through the drainer into the curd-vat, the whole is coagulated by runnet, carefully mixed with the milk. The cream is put into the curd-vat cold, that its oily parts may not be melted.

The temperature at which the milk is kept, from the time it is drawn from the cows till it is formed into cheese, ought to be carefully attended to. To make it cool, and to facilitate the rising of the cream, a small quantity of cold water is generally poured into each cooler. If kept much warmer than 55 degrees of Fahrenheit, it will not properly cast up the cream,—a thing necessary, even when the whole is to be formed into cheese, and

it will very soon become sour; and if it gets into a lower temperature, the milk never coagulates so well;—the cheese made from it is soft and inadhesive; and the whey is separated with difficulty. It is not enough that the temperature be raised to a proper degree when coagulated. If it has, prior to that, become too cold, the heat at setting the curd will not do away the bad effects of the previous cold. It is said to be owing to the milk being allowed to cool too much before it is coagulated, that it becomes difficult to get it formed into cheese in winter, and that the cheese made at that season is so soft and tasteless.

Whenever the milk has coagulated, the whey is drawn off as fast as possble; and, to facilitate its separation, the curd is minutely broken or cut with a knife. When the whey has been mostly extracted, the curd is put into a drainer, and again cut and pressed to expel it more completely. It is next broken small, minutely mixed with salt, and put into the cheese-vat, with a piece of thin canvas round it; and pressure is applied till the whey is wholly extracted, and the cheese formed. It remains the first time about an hour, and afterwards three or four hours each time, in the press, getting a dry cloth, and its position being reversed every time it is replaced. Skewers are never put into the sides of the cheese to extract the whey, as is common in England.

Some have, of late, shortened the process of pressing, by placing the cheese, when it comes from the press for the first time, into water, heated to about 95 or 100 degrees, where it remains till the water falls to the heat of new milk. It is then dried well, and again placed under the press.

Salt is generally applied without measure or weight; but the proper rate is said to be half an ounce to every English pound of cheese, or 13 ounces to 24 lib.

When the cheeses come from the press, they are exposed, for about a week, to a considerable degree of drought, and turned over twice every twenty-four hours, and afterwards laid on boards in a close cool room, and turned over twice a-week. The practice of sweating cheeses after they come from the press, and before they are laid up to dry, so common in England, is not approved of in Scotland, from an idea that it impoverishes the cheese, by melting part of its fat.

All the operations are carried on in Scotland by women. Men would think themselves degraded were they to assist in milking the cows, or making the cheese.

Besides one or two meal cheeses, in which the milk is fresh or sweet, a great deal of cheese is made from milk from which cream has been taken, and which has therefore been allowed to

stand longer. This may be considered as a subordinate branch of the butter dairy, where butter is made from cream, as is still the general practice; but the process does not require to be described, as it is not materially different from that which prevails in what may be more properly called a cheese dairy. Suffolk has been long noted for cheese of this description. Yet the celebrated Parmesan is said to be made of the same material.

The average yearly produce of cheese, from the milk of a cow, according to Marshall, is from 3 to 4 cwt., or more than double the weight of butter. If 4½ quarts of milk commonly yield one lib. of cheese, a cow that gives 2000 quarts in a year should produce about 4 cwt. of cheese. It has been calculated that Cheshire alone makes no less than 11,500 tons in a year.

In many of the English cheese dairies a quantity of inferior butter is made from the whey. In some parts of Gloucestershire and in Cheshire, this produce is rated at half a pound per cow in the week, which sells at from one penny to twopence a pound less than milk butter. In some instances, what is called 'the green whey,' or that which is taken from the cheese-tub after the curd is formed, and the 'white,' or that which is expressed from the curd itself, are at first treated separately; the former being heated as soon as it has parted with the curd, till it throws up a little white froth; and the latter set by, till it is at least a day old. This last is then added to the furnace-pan that contains the green whey, from which mixture a substance is thrown up something in appearance between cream and curd, which is constantly skimmed off as long as it rises, and put into the cream mugs to be churned for butter. In the practice of other dairies, the white whey only seems to be used; and, after standing some time in these mugs, to acidulate for churning, the butter is obtained from it in the same way as from milk. The green and the white whey are, in other instances, both heated together, to which, if perfectly sweet, a little acid is sometimes added.

Whey, whether butter be made from it or not, is sometimes subjected to further operations, to fit it for human food. *Fleetings*, or *flit-milk*, made by pouring butter-milk upon whey, is a common beverage among the farm-servants of Cheshire. But the purpose to which it is chiefly applied, is the feeding of pigs, for which it is worth about a guinea for every cow. From the whey obtained from the milk of four cows, it has been calculated, that a hog may, in one season, and with very little other food, be raised to the weight of 12 or 15 stones.

On the subject of cream, a product common to all the three

classes of dairies, though of the greatest value in the situation proper to new milk dairies, that is, in or near towns, it is only necessary to observe, that the sale of it affords a ready resource, whenever all the milk cannot be disposed of in a fresh state, and also when, from the season of the year, or other circumstances, the manufacture of cheese must be discontinued. But there is yet another branch of dairying that deserves attention,—namely, the fatting of calves; and this also may be, and usually is, carried on, at least occasionally, at dairies of every description. As milk is the chief, and in most cases their only food, its employment in this way may be considered as merely another mode of preparing it for the use of man.

Calves are either suckled, or fed from the pail. In the county of Middlesex, where a great many are fatted by the first mode, the calves are kept in pens of seven or eight feet square. There are seldom more than four calves in one pen, which has only one door, and that is towards the cows. Particular care is taken to keep these places free from dirt of every kind, and well bedded with clean straw. On one side of every pen is placed a small trough, at such a height as to prevent its receiving any soil; this is always kept supplied with chalk, both in lumps and in powder; not with a view to render the veal white, as some persons erroneously suppose, but with the intention of preventing acidity in the stomach. Without this precaution they would be liable to scour; which always prevents their thriving, and sometimes occasions the death of the animal. Some persons mix ground barley with the chalk, and others give them, daily, balls made of linseed-jelly and barley-meal, to render them more fat, or fat in less time than could be done with milk alone. They are suckled at precisely the same time every twelve hours; generally at six o'clock. Any considerable deviation in time would occasion their becoming fretful, and that would impede their becoming fat. In about ten weeks they make the best veal, though they are frequently continued eleven or twelve weeks, with increase of weight; but in that case, the joints of the meat become large, and the grain of the veal coarse. The large calves also sell at a less price per stone, than such as are of moderate size.

In the western counties of Scotland, where cheese dairies prevail, the calves are fed from the pail, suckling being considered injurious to the cows; and as the cows will not suckle any but their own calves, a calf would thus be confined to the milk of only one cow. It is the practice there to give to those that are to be reared, the first drawn milk, which is thin, and abounds with serum; and to such as are fatting, the last drawn milk of two or perhaps three cows. They have no other food;

and bleeding is never used with a view to expedite their fattening, as in some dairies. A little bacon or mutton broth is administered, when a purgative is necessary; and runnet is used for an opposite purpose, if they begin to scour. But the ordinary management consists in merely supplying them with abundance of the richest milk, after the first two or three weeks, and keeping them dry, by means of plenty of litter, in a dark, well-aired apartment, not exposed to the extremes of either heat or cold.

The operations of the dairy, in all its branches, are still conducted, perhaps more empirically than those of any other department of husbandry; though it would appear that science, chemistry in particular, might be applied to discover the principle, and regulate the practice of the art, with facility and precision.

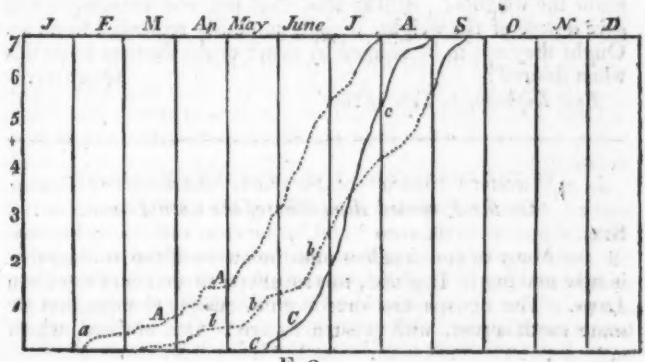
TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

A Table for marking the Progress of Vegetation.

SIR,

IF the following be worth a place in your Publication, you may insert it. The last two seasons have been the subject of much discussion in your Magazine. It is therefore my object to draw the attention of those who may have leisure, to a careful register of facts, which may throw some light on the important subject of climate. The following Table is intended to mark the progress of vegetation. By means of such a register, we may compare one season with another, and also one climate with another.

A TABLE TO MARK THE PROGRESS OF VEGETATION.



The Table is divided into twelve columns, one for each month of the year. The figures on the left hand denote the height in feet and inches: For instance, if we take the Turkey Rhubarb, when it appears above ground, let it be marked on the Table; and as it grows in height, let the register be continued under each month as it is measured. By this means we shall see when the weather is most favourable for its growth. In an early season, suppose the line *A* marks its progress; it begins to grow in February, but receives a check by cold weather, and makes little progress till the latter end of March, when the weather sets in more favourable. Would not the climate of Russia, where they have no spring, describe a line like *C* on the table? Though much later, vegetation makes a greater progress, as it receives no check from a changeable climate. The lines on the Table are only given for the sake of explanation.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

Query as to Tolls.

SIR,

I BEG leave, through the channel of your Magazine, to submit a Query to the public, who are interested in it.

Tolls, in the present circumstances of the country, are essential. But it is surely a maxim of sound policy, that every indispensable burden on agriculture should be reasonable, open to the view, and easily understood by the meanest carter.

How does it then happen, that an apparatus for weighing carts with their lading, to ascertain whether they are subject to an additional toll from their weight, is permitted—when it is the cause of many impositions, from the incapacity of carters to know the weights? Add to this, that not one toll-keeper will give a note of the weight, though anxiously requested to do so. Ought they not to be obliged by order of the Justices to do this when desired? QUERIST.

East Lothian, 1. *Feb.* 1819.

TO THE CONDUCTOR OF THE FARMER'S MAGAZINE.

On the Proposed Alteration of the Corn Laws.

SIR,

Many of your readers must be aware of the attempt that is now making in England, to procure an alteration of the Corn Laws. The newspapers have been discussing the question for some months past, with great acrimony. One of them, which

professes to be an Agricultural Journal, has had its columns filled with letters on the subject week after week, and with scarcely any thing else; and a petition has already been presented to Parliament, praying for a repeal of the late Act, which has hardly yet had time to come into full operation. To the honour of the farmers of Scotland, it does not appear that they have moved in this matter, or even given any countenance to so extraordinary a step; nor indeed is there any reason to believe that it is approved of by any considerable portion of the English farmers. It seems to have had its rise in the vanity or selfishness of a few individuals, very respectable professional farmers perhaps, but certainly very wrongheaded and misjudging politicians; and to owe the notoriety it has obtained, chiefly to the interested industry of one solitary Journal. What is called the landed interest, if not directly hostile to the measure, certainly has not patronized it. The first petition to Parliament has met with the reception which it deserved; and it may be hoped that we shall hear no more about corn laws, from the same quarter at least, for some years to come. Yet as it is natural to expect that some notice of the proceedings should appear in your Magazine, I hope to be allowed to offer a few remarks on the alleged necessity, expediency, and advantages of repealing the present Corn Laws, and substituting protecting duties in their place. This you will see is the object of the petition—of the *General* Agricultural Petition, as it is termed, of which a copy is subjoined. *

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* *To the Honourable the Commons of the Kingdom of Great Britain and Ireland, in Parliament assembled,* the humble PETITION of the several Occupiers of Lands in the County of Glamorgan, whose names are hereunto subscribed;

Sheweth, That the soil of the United Kingdom is competent and fully adequate to the supply of its population, even if it were much more numerous than it is, with all the productions of the soil of the United Kingdom—that is to say, with all corn, meal, flour, rye, oats, peas, beans, barley, beer or bigg, wool, flax, hemp, hides, tallow, seeds, butter, cheese, poultry, vegetables of all kinds natural to the climate, apples and pears.—That your Petitioners, with all humility, submit to the consideration and wisdom of this Honourable House, that as the soil of the United Kingdom and its productions are the prime source of national industry and of revenue, it is impolitic, if this allegation be true, to admit any productions similar to those of our own soil and climate into this country, duty free, until the cultivation of our own soil shall have extended itself to its utmost limits; but whether such allegation be correct in all its parts or not, it is unjust to the occupiers of the soil to admit such productions duty free,

I shall not attempt to conceal the fact, that I am hostile, upon principle, to all restrictions on trade; on the trade in corn as well as the trade in wool, tea, wine, and a hundred other commodities; but it does not appear a sufficient reason for imposing restraints on one branch, that they have been already imposed upon others. Cases may be conceived, where political expediency may go far to justify restraints in our dealings with a particular State; though it must be a very strong case that can long warrant a departure from the rule of buying and selling in the best market: But, in general, to raise up one obstruction to a free trade by way of balancing another, is only making bad worse;—because the exportation of wool is prohibited, for instance, as a compensation to the wool-grower, to prohibit also the importation of corn, seeds, and provisions. The most plausible reason for laying duties on articles of foreign growth or manufacture, is when the price of similar articles of our own is enhanced by taxation. Yet what is this, in many cases, but to oblige the consumer to pay the same taxes twice over, only in a different shape? If the enhancement of prices is occasioned by taxes, to which he is subject in common with the producer, and not by a direct tax on the article itself, it is evident, if he is not allowed to purchase it cheaper from foreigners, that he must, in addition to his own original taxes, pay, in the enhanced price of the commodity, those of the producer also. We have no tithes, and no poor-rates worth notice, in Scotland, nor any thing like a direct tax on land produce; and yet we cannot grow corn so cheap as in France perhaps by 30 or 40 per cent.; on our best soils, wheat, it is said, cannot be

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inasmuch as every such admission tends to disable the occupiers of the soil from payment of their rent, tithes, taxes, and wages, while it leaves them subject to all the pains and penalties incurred by the omission to make good any of these payments.

Your Petitioners therefore humbly pray, that this petition may be referred to a Committee of this Honourable House, where evidence may be given in support of the allegations it contains; and if it shall there be made to appear a just, equitable, and necessary measure—then, but not otherwise, that all the productions of the soil of the United Kingdom may in future be protected from import of similar commodities, duty free, in as full, ample, and beneficial a manner, as the merchants and manufacturers of the United Kingdom are, by the Navigation act and other statutes of the realm, protected in their shipping and manufactories from foreign competition, duty free; and that your Petitioners may have such relief as to the wisdom of this House may seem fit.

raised for less than 80s. per quarter. Why then prohibit the importation of cheap grain from France and other countries? or why impose a duty of 30 or 40 per cent. on foreign grain, to raise it to the price of our own? If it were admitted free of duty, it will be said, our own farmers would be undersold and ruined. Now, if this difference of price be owing to indirect taxes, (for direct taxes are here out of the question), their weight, in the first instance, falls on all other classes as well as the corn grower, and, by means of the prohibition, a second time upon the consumers in the reimbursement of the corn growers. Or, on the other hand, which is probably the fact, if this difference of price cannot be altogether ascribed to taxation, a protecting duty, as it is called, is in reality a tax paid by the consumer to the land-owner, who receives it in the shape of an undue enhancement of rent. The Scottish landlord puts into his pocket, with very little diminution, what the English landlord must share, sometimes in not very unequal portions, with the Church and the Poor.

Whether the consumer of land produce, who is commonly himself also the seller of some other commodity, can relieve himself in whole or in part from this double tax, by raising the price of the article which he has to offer in exchange for the means of subsistence, is a question which it is not at present necessary to discuss. In some cases, I should think he certainly cannot. Corn and provisions, besides their merely commercial value, or the cost of their production, have an intrinsic value which does not belong to any other class of commodities. All that a man hath he will give for his life, or the means of subsistence; but if he be a prudent man, he will only give what he can easily spare for luxuries, and only a little more for conveniencies. Whenever, therefore, the price of subsistence is enhanced by legislative enactments, or other artificial means, the due relation between that price and the price of other commodities, is, for a time at least, interrupted. The holders of land produce no longer deal on a footing of reciprocity with the consumers. It is no longer an exchange of commercial equivalents. The consumer *must* pay the enhanced price, if he have the means, in more labour, or more of the products of labour. He has no alternative; for his labour, or the products of his labour, in the quantity which a perfect equality between the buyer and seller would adjust, can never be so indispensably necessary to the seller of grain, in this artificial state of things, as the grain itself is to him who thus wishes to purchase it.

But it might be unsuitable to the nature of your work, to pursue this speculation further; and it is the less necessary;—

because, notwithstanding these remarks, I am willing to admit, that, in a choice of evils, the late Corn Law was perhaps the least. It was a measure, as it appears to me, imperiously called for by the circumstances of the country at the time; and these circumstances had their rise, not in the avarice or folly of landowners and farmers, but in the political events of the last thirty years, over which the latter at least could have no control; in the state of our currency, and in the sudden and unforeseen termination of hostilities throughout all Europe. Corn, during almost all this period, bore a high price; freights and insurances were more than doubled; what we got from Poland was heavily taxed by the King of Prussia, avowedly that it might not come to us at less than the rate of our own markets at the time; and, for some years, he and the other adherents to the Continental system, would not let us have it upon any terms. Britain was thus confined to her own resources; and the consequence was, an extension of tillage, and an investment of capital in the soil, great beyond all former example. At last, the wished-for result was obtained, and we no longer needed to depend for our subsistence on foreign supplies. But in the mean while, prices had been rising, and rents were promised, in innumerable instances, upon the faith of their rising still higher; the currency was depreciated; and loans and taxes had no other limits than the wants of Government. In one year, a sum was paid into the Exchequer, greater, by millions, than the amount of the national debt at which Hume, about fifty years ago, foretold the ruin of the country. In these circumstances, corn fell, within a few months, to about half its average price for the twenty years preceding; to less indeed than it could be raised for, upon medium soils, though there had been no rent to pay. The consequence was, ruin to a great proportion of our farmers, almost as sudden and overwhelming as that which overtook the armies of Bonaparte at Moscow. But I need not repeat here the facts so clearly established by the investigations of the Committees of the House of Commons and the Board of Agriculture, many of which are to be found in your pages. The situation of the country, not of a small class of the people, but of almost all except annuitants and those who worked for a foreign market; of the great body of labourers, in particular, who were thrown out of employment; not only authorized, but justified some attempt on the part of Government, to arrest the progress of a calamity which its own measures had indirectly produced.

The grower's price of corn must always be higher in a rich than in a poor country, other circumstances being the same; because money is of less value as it is more abundant, and all

kinds of labour are more liberally rewarded; and the home grower's price, in so extensive and populous a country as Britain, cannot perhaps be materially affected by importation, for a period of years. A great influx of cheap foreign grain may be felt upon our markets for a year or two, especially if our own crops happen to be above an average, as was the case in 1813, though, even then, importation was not the only, nor perhaps the principal cause of the extraordinary fall of prices. But this effect would not be of long duration. The actual cost of raising grain in Britain must, upon an average of years, regulate the price of corn in the British market, come from where it may. I mention this, however, only incidentally, and without the illustrations which the position might easily receive, with a view to the gradual abolition of all restrictions on the Corn trade. The landed interest need not look with alarm to such a change, if it should ever occur, nor the other classes with sanguine hopes of advantage from it. Probably we shall never have grain cheaper than we can raise it at home for five years together, if our ports were open to all the world.

Entertaining these views of a question which has divided the nation into two parties, and infused into one of them a spirit of bitterness and animosity towards the other, which is but too ready, on all occasions, to break forth at the call of turbulent demagogues, I cannot but think that it would be a measure of good policy, at least, to say nothing of its advantages in a commercial point of view, now that the nation begins to reap the benefits of a state of peace, to remove the restrictions on the Corn trade by little and little. If a declaratory law were passed to this effect, as was done in the case of the abolition of the Slave trade, land-owners and cultivators would have time to prepare for the change; and rents, in particular, might be gradually adjusted to the rate at which prices might be supposed to settle, in the event of all restrictions being removed.

I have already expressed my doubts whether the average prices of grain in this country would actually be lower if the Corn trade were free; but, whatever may be thought of this, I am quite satisfied that a fall of prices, and a reduction of rent, if these should be the consequence, need not be the cause of throwing inferior soils out of cultivation, or of diminishing the production of grain; nor do I think that a reduction of rent must be the necessary consequence of a fall of prices. It might be out of place here, to examine, at much length, the theories of Malthus and Ricardo, on the connexion between produce and rent; and to endeavour to show, that it is not necessary, either to the extension of tillage or the improvement of our

present tillage lands, that prices and rents should previously rise. The real value of land, the actual degree of its productiveness, depends mainly upon the judicious investment of capital in its cultivation; a great deal more upon this than upon its original or natural fertility, to which these writers chiefly confine their arguments. Whatever, therefore, prevents this investment of capital, keeps down, in the same degree, the amount of produce which the land is capable of yielding. Rent, and especially a rack rent, certainly prevents this investment, even where the land is held on leases for years; but throughout the greater part of England, where tenancy at will prevails, any expenditure of capital by the tenant, except for the necessary purposes of cultivation from year to year, is altogether out of the question. Hence, the produce of more than the half of our territory is not so great as it might be, if it were cultivated in moderate-sized farms by proprietors themselves, by a third, probably, or more. This is the true reason of the supposed necessity of having recourse to inferior and still inferior soils, as the demand for food increases. In the first place, certainly, we may have recourse to better and still better cultivation on old tillage lands, and render them more productive, by the further investment of capital in their improvement. High prices of corn can never encourage, at least their effect must be of short duration, the expensive improvement of the land by a tenant at will, or on a short lease: Such leases do not allow time for his reimbursement, till the landlord resumes his power of disposing of his property, to the same, or another tenant, at a rent proportioned to its value at the time. Leases, even for 21 years, do not admit of the same investment of capital by a tenant, as if he were himself the proprietor. To be reimbursed within this period, he must draw at least 10 per cent. for his money; whereas a proprietor, investing the same sum, would be well paid by five per cent., or even less. *I conceive it, therefore to be an undeniable fact, that the division of land produce, or the price of it, between the landlord and tenant, necessarily obstructs the investment of capital, and keeps down the consequent productiveness of the soil;* or, in other words, enhances the price of the necessaries of life; *and that in this way rent, indirectly at least, enters into the price, or enhances the price, of all sorts of land produce.* It is the object of Mr Malthus's theory to establish the opposite conclusion; but he will only succeed with those speculative men who would transfer the reasoning of the exact sciences to the complicated and ever shifting, and mingling and jarring interests of national economy.

If there be any truth in these remarks, it will readily be seen that a fall in prices, by importation or otherwise, does not ne-

cessarily involve a reduction of rent; and that neither the one nor the other, nor both combined, must necessarily occasion a diminished production. The present prices and rents are not necessary to obtain the present aggregate produce of corn. What is necessary to obtain this aggregate produce, and to enlarge it, is, by a better system of leasing, to hold out encouragement to the tenant to invest capital in the improvement of his farm; and this encouragement may be such as to justify him in making such investment, even though prices should be stationary, and rent somewhat advanced; or rent continue the same, and prices fall.

In stating this opinion, I wish to be understood literally; nor have I any abstruse arguments to offer in its support. Let us look at the facts as they lie thick around us. Instead of comparing the different soils, in point of *natural* fertility, to a series of machines, of which, every successive one employed is less efficient than the former, till we come at last to the lowest, which affords no more than the common profits of stock,—let us compare the different productiveness of the *same quality of soil*, according to the several tenures by which it is cultivated. Reversing Mr Malthus's arrangement, we may begin with the least productive tenure, namely, tenancy at will; and, passing on through leases of different periods of duration, come at last to the man who cultivates his own fields. Will it be said that, under all these tenures, the produce must be the same? and that the prices, whatever they may be, offer the same encouragement or discouragement to cultivation under them all?

The tenant at will, it is evident, cannot prudently employ a shilling more in cultivation than he hopes to have returned every year; he can hope for nothing more than the ordinary profits of his floating capital; and, as prices rise or fall, so will his rent. So far rent and prices must go hand in hand, while the expenses of cultivation continue the same. Give him a lease for ten years at the same rent, and he will begin to lay out a little capital, in the way that promises to make the speediest or largest returns, so that he may be reimbursed before the expiration of his lease;—but still he can lay out but little; for he would need an yearly return of 20 per cent., which few agricultural improvements will yield: the probability however is, that he will raise considerably more produce than he did before, whether prices rise or fall. Let the lease be next extended to twenty years or upwards, allowing him to be remunerated for his improvements, by returns at the rate of 10 per cent. annually, independent of the ordinary profits of the floating capital employed in cultivation from year to year; and he may then safely

employ a considerable extra sum in permanent improvements. In so far as a greater produce is obtained by means of this expenditure, he stands in the twofold situation of landlord and tenant, burdened with an annuity of 10 per cent. and no more. He has no new rent to pay for it. If prices be such as to yield him this 10 per cent. from his extra produce, he has enough; and yet, they may be much lower than he would require, if he had both the ordinary profits of cultivation to get back, and a rent to pay on this produce. Enlarge the term of his lease, till an annuity of 8 or 6 per cent. is sufficient for his reimbursement, and you give him what is virtually a separate estate for that period, subject to no other burden. He may be said to hold two distinct farms; the original one, for which he pays the full rent it was worth at the date of the lease; and another, which he has afterwards bought with his own money, and for which he pays no rent at all,—nothing more than this annuity. From both farms, indeed, he must also get a profit on the ordinary expense of cultivation, or on what I have called his floating capital; but this being the same, or nearly so, in all the varieties of tenure, in no degree affects the present question; unless it be, that, on improved lands, that expense will generally be less, in proportion to the value of the produce, than on lands in a low productive state. It is needless to add, that, while a tenant must obtain an annuity from the capital he invests in the soil, sufficient to replace it with interest before the expiration of his lease, a proprietor may make the same investment in permanent improvements, at the legal rate of interest, or rather at such a lower rate of interest as he would be content to receive, if he were to lay out his money in the purchase of another estate. If he would be willing to buy another estate, in the most convenient situation possible, at 25 or 30 years' purchase, he may invest capital in the improvement of his present one, at the same rate of interest. From the cultivation of the tenant at will, through the intermediate series of leases of shorter or longer duration, the cost of production diminishes, till we ascend to that of the absolute proprietor, who is in a situation to enlarge his growth, by means of capital, on terms the most advantageous to the public.

I am well aware that proprietors, even such as make farming their profession, do not always produce more from the same description of land, than a tenant would do upon a lease of moderate duration; and it is equally consistent with the fact, that the longest leases do not always make the best tenants: But it were certainly absurd to ascribe this to their tenures, as if it were natural to employ capital more sparingly, as it promised to be

more productive. It is quite evident, that men so situated, after allowing for the original rent of tenancy at will in both cases, can afford the surplus produce obtained from a judicious investment of capital, at lower prices than a tenant at will, or on a short lease, possibly can; or, if prices continue the same, that a larger sum may be placed under the head of rent. Rents may thus remain stationary, or even advance, while prices are falling. It is only necessary to place the tenant, in so far as regards the encouragement to invest capital in permanent improvements, in a situation approaching to that of the proprietor; and this may be done, either by long leases, or by following out the principle laid down by Lord Kames in his plan of a perpetual lease; according to which, the tenant, if dispossessed, was to be paid for his improvements.

After all, there is no doubt a limit to the productiveness of the soil, beyond which it cannot be raised by the most liberal employment of capital. When this point has been attained, recourse must necessarily be had to new land; and this will generally be less productive than the old,—or the expense of cultivating it will be greater in proportion to its produce. It will cost more to raise a quarter of wheat on it; and therefore the wheat must sell for more. But to this natural price rent must still be added. No land fit to carry wheat, or any kind of grain, can be got without rent; for, in a populous country, all *such* land yields a rent without cultivation; and in this country, even the very moors and mountains, that by no human industry could be made to carry wheat, or any kind of grain, still pay rent. Mr Malthus, who assures us that rent does not enter even indirectly into the price of grain, found it necessary to suppose, that people grow corn on the lands last taken into cultivation, for the profits of stock only, without their yielding any surplus for rent. In this case, the right of property must be worth nothing; and we might expect to see wheat grown upon land to which the cultivator could show no other right, than simply the primitive one of occupancy.

It deserves to be particularly remarked, in regard to the comparative unproductiveness of the successive additions made to the cultivated lands, that this, though it may be their natural condition, is not necessarily permanent. The poor sands of Norfolk, for instance, now carry as much corn per acre as much of the *naturally* rich soils of England, and are cultivated at as little or less expense. When lands, originally rather unfertile, have once been brought under correct management, the natural inferiority of the soil gradually disappears; and if the climate, or acclivity of the surface, or some other insuperable impedi-

ment, does not baffle human industry, it will soon come to produce more grain than the best soils will do in their natural state, and with less labour. It is often only at the outset that the difficulties are greater, and that a greater expenditure of capital must be incurred; but the effect of this may be a permanent, not a temporary, amelioration: so little analogy is there between soils originally inferior in fertility, and machines which no human power can render more efficient, to which Malthus has compared them.

I have been led to say more on this subject than I intended; for the writers, who attempt to demonstrate that we cannot grow more corn than we do, unless prices and rents rise still higher than they are,—or that the present prices and rents are necessary to obtain the present produce,—or that our grain is sold at the lowest price for which the whole of it can be raised, since a part of it yields only the ordinary profits of stock to the cultivator, without any rent to the proprietor,—these writers, it appears to me, present to us prospects infinitely more gloomy than the restrictions on the corn trade. If they have really been successful, we have to look forward to a constantly increasing price of the necessaries of life, as our population increases,—a progressive addition to the wealth of land owners, and a corresponding deterioration in the condition of the great body of the people. Now, as we do not look to foreign supplies of grain as likely to afford any considerable relief, our case would be deplorable indeed, if the conclusions of these ingenious men were as sound as they are plausible and imposing. But the time, we imagine, is yet far distant, when we shall be compelled to have recourse for our subsistence to soils so sterile as to yield nothing more than the ordinary profits of stock for their cultivation; and when an advance of price must always necessarily precede an increase of production.

If it be true, then, that a free trade would not permanently reduce the price of grain in Britain below the growing price of the British cultivator; and if it be also true, that an advance of prices and rents is not necessary to the enlargement of our home growth; it will follow, that restrictions on importation are much less necessary for the security of our own farmers and landlords than seems to be generally imagined; and that, at any rate, even though we had nothing but our own resources to depend on, these resources may be rendered available by other means than an enhancement of prices. The great object ought to be, to diminish our own growers' prices, by encouraging the investment of capital; relieving them from all burdens that press upon them exclusively, at least in the first instance; and raising

them from that degrading inferiority to the mercantile and manufacturing classes in which they are still held in many parts of Britain. If we wish to have corn comparatively cheap, we must seek to obtain it from our own soil; if we wish to support the present rents, it must be done by a better system of leasing; if we wish to enlarge our produce, the best means is to employ more capital on our present tillage lands.

Any further advance in the importation rate, or any prohibitions or protecting duties which are calculated to produce the same effect, seem as unnecessary as they are inexpedient. For what, in fact, is the protection which the present Corn Laws are meant to afford? In France, the Netherlands, and the countries on the Baltic, corn is grown at very little more than half our present importation rate; the growers' price of wheat in these countries, according to the latest accounts, varying from 32s. to about 50s. a quarter, while it cannot be imported till it is 80s. in the British market. Hence, as far as Corn Laws can operate, the British consumer must pay nearly twice the price of the general corn markets of Europe. This, one should think, is sufficient protection;—or what is there that will be thought so?

To allege, as a reason for high prices, the payment of tithes and Poor-rates, may not be inconsistent in proprietors, but seems to be altogether futile and inept on the part of tenants at will, or on short leases; for their rents are so much lower on that account. The income of landlords is so far diminished; or it might advance to that extent, if these burdens were removed. It is, indeed, a mode of paying rent often vexatious to the tenant; and, what is worse, it may restrain cultivation—and, as it evidently obstructs the investment of capital, indirectly enhance the price to the consumer. But if a sum equal to the tithes and Poor-rates be added to the rent, as is the case in Scotland, the tenant gains nothing by the change, except that he may be saved a little trouble and uncertainty,—for which, of course, if a prudent man, he will take care to make the landlord pay beforehand, in a still further diminution of rent. Rents may be high, with comparatively low prices, as in this part of the island; but if you raise prices, without materially increasing the expenses of cultivation, rents will every where advance, so as to leave the tenant, as before, nothing more than the ordinary profits of stock. No tenant who has not a lease for years can be benefited by high prices.

In regard to the labouring classes, a measure which is avowedly meant to raise the prices of grain, and which at the same time professes to improve their condition, must bear a very pro-

blematical, if not suspicious appearance to an impartial observer. It is, at all events, placing them still more at the mercy of their employers: And who are the agricultural employers but men themselves at the mercy of the landowners? And as to manufacturers, and all other classes but farmers, can it be pretended that a higher price of corn will enable them to employ more hands, or to pay higher wages? A farmer who has a lease for years at a comparatively low rent, and who obtains such prices as corn bore in 1813 and a few years before, may no doubt think it his interest to increase the number of his labourers; but, however high may be the price, this interest is at an end as soon as his lease expires. Those who have no leases, can have no such interest at all.

We have only adverted to the proposed protecting duties, in so far as they are meant to apply to corn; but when it is considered that they are also to embrace all the other productions of our soil, several of which are local and very limited, such as clover-seeds, hemp, flax, and some others, the measure certainly does appear to be one of the most absurd in principle, and would be the most unequal in its operation, and extensively ruinous in its consequences, of all the wild projects in Political Economy to which the attention of the public has been lately invited. What should we think of a proposal to encourage the growth of vines, mulberries, sugar-cane, &c. in this country, by imposing duties nearly equal to a prohibition on the wine, silk, sugar, &c. of warmer climates? The principle now contended for needs only to be a little further extended, to embrace the latter productions, as well as some of the former. We could make wine in the north of Scotland nearly as well as save clover-seeds, and bring a hop-plantation to profitable maturity.

As to the mode in which this measure of protecting duties is proposed to operate, whether by a graduated scale of duties, rising and falling in the inverse *ratio* of our own prices, or by a per centage on these prices, there would seem, at first view, to be less objection than to the principle of our present Corn Laws, if there was room for any new enactment. But there is nothing in either, that was not previously suggested, and, probably for good reasons, abandoned.

A prudent man, however good may be his cause, if success be utterly hopeless, and the attempt to maintain it sure to excite apprehension and discontent, will quietly submit to some inconvenience, and wait for a more favourable opportunity. In this respect, the conduct of those who take the lead in this measure is singularly blameable. It has already been appropriately designated as an act of imprudence and folly approaching to

insanity. What is most to be regretted is, that, as happens in similar cases, the great body of farmers may suffer from the extravagance of a few of their number. The errors committed in making up the quarterly averages which regulate importation, have just been brought under the notice of Parliament; but it is not improbable that this ill-timed Petition may excite an aversion to all discussions which may appear to open up the question of the Corn Laws.

28. *January* 1819. CIVIS.

FOR THE FARMER'S MAGAZINE.

Account of the Country, Farming, and Manners of the People of Kentucky, in 1817.

[From PALMER'S Travels in the United States of North America, &c.]

THE whole of this country, in common with *all* west of the Alleghany Mountains, except two or three French settlements on the Mississippi, was unnoticed, and unsettled, before the year 1766, when John Findlay, an Indian trader, travelled through it. In the year 1769, with Colonel Boon and some others, he again visited it, when the whole party, except Boon, were killed by the Indians. He escaped, and arrived safe to his home in North Carolina. In 1775, tempted by the fertility of the soil, Boon, with his own and five other families, and forty expert hunters, again explored it, and erected a fort on the banks of the Kentucky. Being joined by numerous other adventurers, after many bloody battles with the natives, they succeeded in the settlement. So rapid has been the population since that period, that at present (1817) Kentucky and Tennessee alone, are computed to contain 750,000 Whites, and 160,000 Negro slaves, besides the remains of the once powerful Indians, who are now partly civilized, and about 10,000 in number. Their lands are all in the state of Tennessee.

The general face of the country is undulated, hilly and wild. Great part of the soil is a rich loam, black, or mixed with reddish earth, almost all of it on a limestone bottom, which is often six feet below the surface.

The whole country is well watered, heavily timbered, and delightful. At the time we saw it, the forest was a profusion of flowers, and of the most beautiful, striking, and varied foliage that can be conceived, presenting a fine field for the botanist.

The highest hills and mountains are covered with trees to their summits. White clover is natural, and plentiful. Near Cumberland and Clinch rivers, the scenery is the most varied and exquisite imaginable. The beds of torrents, which in the spring are often impassable rivers, are at this season dry. They are a curiosity, being often full of shrubs and tall trees. Here is a variety of birds, many of them very gaudy, particularly the paroquet, some species of the woodpecker, the humming-bird, and several small birds, which the people call red, blue, and yellow birds, according to their plumage. Few of them sing sweetly, the Virginia nightingale and mocking-bird excepted.

Travellers in the back woods of America should be provided with a pocket compass; and, if they have no desire to sleep in the woods, ought to be particular in inquiring their route for the day, and note the distances, &c. down. In thunder storms, which sometimes occur, accompanied with violent gusts of wind, the traveller, if in the forest, should if possible get to some open place: the old branches, limbs, and trees, which always crash around on such an occasion, are very dangerous, and have been known to severely wound, and even kill the unwary.

The roads, as may be expected, are indifferent, often little more than a horse-path, full of stumps, with trees and shrubs matted across; so that you have to lie down flat on your horse in passing: Often a great tree intercepts your road, where you have no alternative but getting over it. Where a swampy place occurs, trunks of small trees are laid close together, and continued to the firm ground; this is called a 'Dutch turnpike,' from the early Dutch settlers first making them. These swamps are full of various species of frogs, which make a great chirping and noise: Besides the bull-frog, there is the tree-frog, green-frog, water-frog, land-frog, bell-frog, and some other varieties. The reed-cane, which formerly grew so plentiful here, is almost entirely destroyed by the hogs and cattle; several sorts of grass, pea-vine, &c. have sprung up and supplied its place.

Our living consisted almost invariably of coffee, hot short cakes, called biscuits, corn-bread, cucumbers, honey, eggs, bacon, and chicken. The traveller sometimes gets a change in boiled green ears of Indian corn, boiled last year's corn, called *homony*; fried squirrels, deviled pigeons, venison, &c. but chicken, eggs, and bacon, was our fare till we were tired of it. We often had a good laugh about the chickens, and the manner of catching and dressing them.

As soon as you arrive at a tavern, or house of entertainment, and make known that you wish for breakfast, or dinner, or supper, a number of Negro children, who are always loitering about

the door, receive a nod from their master or mistress. Accustomed to the signal, off they start, sometimes ten or twelve, single out a pullet, and chase it round the offices, and through the zig-zag fences, shouting, and often tumbling over each other. This they continue till they tire it out, or pen and catch it. In a minute it is in a pot of boiling water, feathers and all, from whence it is speedily taken out, stripped of its feathers, opened, seasoned, grilled, or fried, with some bacon, and served up in less than half an hour. A glass is mostly set by each cup and saucer, and a large pitcher of milk stands on the table, ready for those who wish it. Our charges were about one dollar and twenty-five cents per day, man and horse.

Except when on a hill, even in the settlements, you can rarely see above a furlong, or quarter of a mile, from the road side: all besides is interminable forest. The log-houses are often miserable looking places, full of great chinks; if with windows, a hat, or a petticoat, is often stuck through the broken panes; paint is rarely seen. The fires are all made on the hearth. A fire-place, like our English grates, is almost unknown. All this is no indication of poverty, but an almost certain one that you will be received with hospitality! I have seen good looking brick houses, with the broken windows decorated with hats and petticoats, and have been assured the inmates were people of considerable property: it is a custom, originating in the difficulty of procuring glass, and the habit of procrastination, in which mankind are so apt to indulge. The environs of the house are often ornamented with a peach or apple orchard, a small garden, patch of tobacco, cotton or indigo, and bee-hives (made of hollow pieces of logs, or square boxes): hardly a farm-house is without swallow boxes, attached to a pole, in the manner of pigeon-lockers: in these the swallows always build. Deer, or bear skins, are to be seen stretched to dry at the ends of most houses.

In several of the houses we were at, I saw a taste for reading prevailed; I recollect, besides Bibles and newspapers, seeing in many of them the Salmagunda, Olive Branch, and History of the late War; three standard works. Travels and political pamphlets were also common. A love of liberty is cherished in the hearts of these rough, but high-minded, natives: national pictures, hymns and songs, hanging to the wall, remind them of the history of the revolution, the events of the late war; and, what is more essential, of the value and necessity of keeping unimpaired their rights and invaluable laws.

The inhabitants are all young and middle aged; we saw but one or two *old* people the whole journey; this scarcity of old

men is not because the climate is unhealthy, but because the people are, or were, a few years ago, almost all young settlers. Six or eight children, with little else but a shirt on, are generally playing about the door of every house; the country seems propitious to the increase of the human species. Almost every man owns one or two slaves; and the more a man owns, the better he is looked upon, especially in a matrimonial case: As slaves, they are treated kindly, with very few exceptions.

The dress of the people is simple; the men wear either a home manufactured cotton coat, or a hunting shirt and pair of trowsers, with seldom any handkerchief round their necks; the women dress in plain gingham, or stripe, all domestic manufacture; they knit their own stockings, spin and weave their clothes and bedding, often make their own candles and shoes, and do almost every thing within themselves. The men are fond of roving about in the woods with their rifle and dog; they are excellent shots, to a certainty bringing down a squirrel or bird from the tallest trees; some of them make considerable profit in finding gensing and wild honey. Too many neglect their farms, which in the end would prove more advantageous, and follow this life almost altogether. They are all good horsemen. I have seen four or five Kentuckians start, to race for a trifling bet, some with saddles and bridles, and some with nothing but a halter; or, clapping an old saddle without girts on a horse, whisk out of sight in a few moments. They are said to be curious about travellers and their affairs. It is true, they sometimes ask many questions that would be considered impertinent in England, but they will answer any you may propose to them with the same freedom. The peculiar situation of the country, the thinness of its settlements, and the distance they live from old America, have sanctioned the custom. We had something like the following dialogue with a New England man, settled in Kentucky, which I copy, as giving a specimen of the worst English you can possibly hear in America. On arriving at the tavern door the landlord makes his appearance.

Landlord. Your servant, gentlemen, this is a fine day.

Answer. Very fine.

Land. You've got two *nice creatures*, they are *right elegant* matches.

Ans. Yes, we bought them for matches.

Land. They cost a *heap* of dollars (a pause, and knowing look) 200 I *calculate*.

Ans. Yes, they cost a good sum.

Land. Possible! (a pause) Going westward to Ohio, gentlemen?

Ans. We are going to Philadelphia.

Land. Philadelphia, ah! that's a *dreadful* large place, three or four times as *big* as Lexington.

Ans. Ten times as large.

Land. Is it by George! what a *mighty heap* of houses (a pause); but I *reckon* you was not *reared* in Philadelphia.

Ans. Philadelphia is not our native place.

Land. Perhaps *away up* in Canada.

Ans. No, we are from England.

Land. Is it possible! well I *calculated* you were from abroad (pause) how long have you been from the *old country?*

Ans. We left England last March.

Land. And in August here you are in *Kentuck.* Well, I should have *guessed* you had been in the States some years; you speak almost as good English as we do!

This dialogue is not a literal copy, but it embraces most of the frequent and improper applications of words used in the back country, with a few New England phrases. By the log-house farmer and tavern keeper, they are used as often, and as erroneously, as they occur in the above discourse.

From the rascality and quarrelsome behaviour of a few, the whole people have got a very bad character amongst the Sister States, especially for blackguardism, and their manner of fighting when intoxicated; but this is certainly confined to the lowest, and is optional to the fighters. I understand the question is generally asked, *will you fight fair, or take it rough and tumble? I can whip you either way by G——!* The English reader knows what fair fighting is, but can have little idea of *rough and tumble:* In the latter case, the combatants take every advantage; pull, bite, and kick, and with hellish ferocity strive to *gouge,* or turn each other's eyes out of their sockets! I never saw a gouging match; and, though often of necessity in the lowest company, never had any one offer to do me *that favour.* I believe it is not so common by any means, as is represented. I saw but two men who had been injured by this method of fighting; one had almost lost an eye, and the other, a free negro, was nearly, or totally sightless. They both lived on the banks of the Ohio, where this dreadful art is most practised; it was introduced from the Southern States. There certainly ought to be a strong law enacted, to prevent a resort to so brutal a practice; surely it is a disgrace and stigma to the Legislature. Prize-boxing is unknown in the United States.

Farms are to be had in any part of this country for from two to thirty and forty dollars, according to situation, quality, and improvements. The farmer grows but little artificial grass,

potatoes, carrots, turnips, &c.; Indian corn, and the wood ranges, supply the place. Every farmer has a herd of pigs, that with the cows rove the woods for sustenance, which is ample at all times. The cows have a bell strapped round their necks, so as to be easily found; they almost always make toward home in the evening. The hogs are more troublesome in summer time, but generally attend the call. I am informed they get quite fat in the winter, feeding on the various mast with which the forests of the Western States are abundantly supplied.

FOR THE FARMER'S MAGAZINE.

Mr Curwen's Experiments in Rearing, and Fatting Cattle at an early age, without sending them to Pasture.

[From the Transactions of the London Society of Arts, Manufactures, and Commerce.—Vol. XXXIV.]

THE following letter was addressed by Mr Curwen to the Secretary of the Society.

Under the fostering influence of the Society of Arts, &c. great has been the advantage reaped by the empire in every branch of useful knowledge. The hope of their honours has, and I trust will, to the latest period, form a powerful stimulus to exertion. I speak feelingly,—many of my experiments would otherwise have never been undertaken. My sense of gratitude for their favours is not, I trust, the only effect produced. The sanction of their patronage, on the system of soiling, has had an extensive influence in spreading the practice through every part of this country. The favourable light in which it is held, encouraged me to attempt extending the practice still further; and suggested the trying to rear cattle by the same means.

The objects to be gained were, a more early maturity; a diminished risk in rearing; a saving of cost in feeding; and the creation of an additional quantity of manure. The farmer and public were likely to be benefited, and the experiment was successful.

The result, which I have now the honour of submitting to the Society, will, I hope, prove satisfactory to them, and conclusive as to the success which has attended the experiment in every point.

Seventeen calves were reared in the course of the last year; eleven short-horned or Durham breed, and six Ayrshire. Of those turned into the yard, which is done when they are two

months old, not one has been lost, nor have they been subject to any complaint. Attention was particularly paid to them at the time of changing their food from turnips to clover. The intention of the experiment being to bottom the practice on a system which might afford a prospect of profit to the farmer, all costly food was rejected. The first month, the calves had but one gallon of new milk per day; for three months afterwards, three gallons. A winter dairy being what is aimed at, most of the calves are dropped from November till April. Turnips and hay were given with the milk, but neither cake nor meal. From June till October, the food was clover; afterwards, till the end of May, turnips; till Candlemas they had some little hay: *being well taken to the turnip*, straw was substituted.

In size, they were little inferior to those of double their age. So good was their condition, that one of the Ayrshire heifers, of eighteen months, was butchered. The live weight was fifty-five stone, of fourteen pounds to the stone. The carcase was thirty-one stone nine pounds, and the loose fat two stone nine pounds. The animal was weighed without fasting, which was equal to a tenth of its weight. The carcase was esteemed particularly beautiful, and the meat highly approved of by the members who saw it, (for it was killed at the meeting of the Workington Society);—not one of the numerous visitors who was not agreeably disappointed as to the result. The short-horned or Durham breed, were in much greater condition, and would have killed six and forty stone at least. The gain, on turnips, was fully three pounds a day on each of the Durham heifers. I conceive there would be no difficulty in bringing up the heifers to sixty stone of carcase at two years old. They consumed, on an average, six stone of turnips a day; of hay they had about half a stone; when straw was given, no account was taken. Besides the food I have just mentioned, they had a feed of steamed chaff, the benefit of which was solely from its warmth, in preventing the green food disagreeing with them, as it would otherwise have been cast into the dunghill.

The produce of two acres, divided between turnip and clover, would be abundantly sufficient to support a beast to two years old. The comparison between animal and vegetable food would be thus. A fallowed acre of wheat may be supposed to produce thirty Winchesters of sixty pounds weight, or 1800 pounds (128 stone 8 pounds);—sixty stone of carcase would be 840 pounds;—taking the loose fat at five stone, or 70 pounds, the total would be 910 pounds: So that the animal food, on this system, would be equal to one half of the vegetable, where fallow is introduced;—under any other system, nearly equal to a third.

The manure created was very considerable. As this depends on the quantity of straw, it is difficult to say to what extent it might be carried. In soiling in the house, the calculation is a ton a month for each beast; and not much less might be made by this mode, though not of equal quality. In the present year, I have reared five-and-twenty calves with equal success. The progress is always greater on turnips than clover. The heifers of twenty months are now taken into the house, and will, as occasion offers, be given the bull. In size and figure, they are of great promise. The success of the experiment has both pleased and surprised all who have seen them; nor has the example been without its effect; some of the farmers of the neighbourhood have already adopted the practice. Gratified shall I be if this meets with the approbation of the Society, and shall be happy to render any further information that may be required, trusting this new system of soiling may be as favourably received as what I formerly submitted to them. I had then no other claim to merit, than that of adopting a practice prevalent in the Netherlands. At present, I am a candidate for originating a system not previously known.

I beg leave to subjoin an account of the mode of burning surface soil and clay, by the use of hot lime. This practice, which bids fair to be attended with important consequences, has long been in use in Ireland. On the bogs I observed it (in a recent tour through that country) with great satisfaction, and lost no time in adopting it. The first attempt was the burning it in kilns, with roots and blocks of wood. The cost was considerable, which led to the attempting it with hot lime: Seventy bushels of lime, directly from the kiln, spread on a layer of sods, eight yards in length and five in breadth, between some layers of sods of a foot each, will, in 24 hours, ignite it. Fresh sods must then be applied; and when a quantity of ashes are once procured, a proportion of clay may be burnt with it: By this mode, the fire is never so hot as to vitrify the ashes. The fructifying quality depending, probably, on the union with the atmosphere, the ashes will benefit in proportion to their power of absorption. I have Swedes, with sixty single-horse carts of ashes, little inferior to those that had one hundred of dung; common turnips, from forty carts, that are forty tons *per* acre; and this on strong clay, not deemed fit for turnip culture. I have twenty-one acres, with only twenty cart-loads, that are highly promising; these are on new ground. Sixty acres of wheat, from forty carts of ashes and sixty Winchesters of lime; this was but a light crop. The soil being a clay, and the elevation great, I am disposed to attribute the lightness of the

crop to its being sown too late in the season. The clover is admirable, and such as was never seen on this farm. By this power of creating manure, a much larger proportion of dung may be given to clay ground; the benefit of which, I am disposed to believe, will most amply compensate. I hope, at some future period, to be able to bring this subject before the Society. My potatoes have been housed some days, and wheat sown. Another week of good weather will see sixty acres of turnips stacked, and wheat sown. By this practice, and more early sowing, many of the objections to growing turnips on clay soils are obviated.

This letter is dated 15th October 1815, and is followed by others on the subject of it from Mr Curwen himself and other gentlemen, to whom the Society seem to have applied for further information. All agree in stating the high condition of Mr Curwen's cattle; though not without expressing doubts as to the expediency of the practice in regard to common farmers. From a certificate subjoined to these communications it appears, that an Ayrshire ox (one of the calves mentioned in Mr Curwen's letter, we suppose, and reared in the manner there described), 22 months old, was slaughtered on the 19th May 1816, and weighed 50 stone the four quarters. The Society's gold medal was adjudged to Mr Curwen.

FOR THE FARMER'S MAGAZINE.

Note of the Prices of Willows.

November 1818.

Prime cost of 300 bundles willow rods, at Hamburgh, with charges - -	L. 51	17	8
Duty at 3s. 2d. per bundle - -	47	10	0
Charges at Leith - - - -	0	10	0
Freight and primage, &c. - - -	16	10	0
	L. 116	7	8

Cost of each bundle about 7s. 8d.

The price of the same article here, and in England, is from 10s. 6d. to 12s. a bundle, but not so good.

BRANCH II.

Review of Agricultural Publications.

Art. I. *New View of Society. Tracts relative to this Subject, viz. Proposals for Raising a Colledge of Industry of all useful Trades and Husbandry.* By John Bellers.
(Reprinted from the Original, published in the year 1696.)
Report to the Committee of the Association for the Relief of the Manufacturing and Labouring Poor.
A Brief Sketch of the Religious Society of People called Shakers.
With an Account of the Public Proceedings connected with the Subject, which took place in London in July and August 1817. Published by Robert Owen. London, 1818.

In our XVIIIth Volume, p. 186, (May 1817), the reader will find the substance of the second of the papers enumerated in the title, but without any attempt to estimate the practicability of the plan which it unfolds, or the results to which, if once fairly tried, it might be supposed to lead. This plan is already well known, having at one time engrossed a considerable share of public notice, by means of the meetings held in London in August 1817, at which it was fully explained by Mr Owen himself. About that time, some benevolent gentlemen seemed inclined to encourage the experiment; and, among others, as we noticed at the place above referred to, no less a person than Mr Southey, in his Letter to Mr William Smith. Yet if any progress was ever made towards this experiment, the design seems to be now abandoned; a circumstance which may be owing as much to the extravagant length to which, latterly, Mr Owen proposed to carry it, and the obnoxious sentiments he expressed in reference to religion and the orders of society in this country, as to any radical error in the plan itself. If its author had been less sanguine and precipitant, it is by no means improbable that the experiment would have been actually made; for we now hear, that something similar is proposed, by a gentleman of no less knowledge in matters of Rural Economy than Sir John Sinclair. Mr Owen himself, notwithstanding the rather unfavourable reception which his scheme experienced from the London meetings, does not seem to have relin-

quished it. He is said to have repeated the proposal to a still more distinguished assembly, the late Congress of Sovereigns, and to have exerted all his powers of persuasion upon the Emperor Alexander in particular. As the scheme is intimately connected with our Rural Economy, and recommends itself to the benevolent, both by the object it professes to have in view, and by its apparent practicability, it will not be out of place here to offer a few remarks on the subject.

The nature of the plan may be described in a few words. Mr Owen proposes to collect those who cannot find employment elsewhere, into bodies of 1000 or 1200, and to employ them chiefly in the cultivation of about as many acres of land, though partially also in manufactures. Their labour is to be performed under the direction of superintendants; and its produce to form a common stock, out of which, it would appear, every single labourer, and every family, whatever may be its number, are to receive an ample supply of all the necessaries and comforts of life. The great sources of the prosperity of these establishments are to be, moral training, mutual cooperation, community of interest, and economy in the lodging and living of the people.

This may appear a delightful piece of Utopian workmanship to some, while others will perhaps think it not far removed from a well-regulated parish workhouse. But its author is so much in love with his plan, that, notwithstanding the disappointment he experienced at the London meetings, he immediately after proceeds with a further development of it; and, with a view to the 'emancipation of mankind,' contemplates the accession of three other classes of villagers. Besides those who are now paupers, who are to constitute the *first* class; there is to be a *second*, consisting of workmen without property, who are to be employed by the highest or fourth class; a *third* of artisans and tradesmen, worth from 100*l.* to 2000*l.* each; and a *fourth*, composed of persons possessing from 1000*l.* to 20,000*l.* each. Even these do not exhaust Mr Owen's powers of imagination.

'I conclude, however, that every class in society below the very wealthy and the highest ranks, will give a decided preference to physical and intellectual liberty—over bodily and mental slavery; to temperance, health, and rational enjoyment—over intemperance, disease, and suffering; and to have thousands and tens of thousands of well disposed, well informed, and sincere friends around them, on all sides, all acting for each other in one bond of love and interest—rather than exist among the folly, insincerity, and counteraction of society, as it is now constituted; and more especially, *when the same property and care will produce them* MORE THAN TENFOLD *advantages be-*

yond what any of the existing arrangements can afford. In short, when the time shall arrive that it will be prudent to develop the whole plan in its more minute detail and general combination, it will be obvious to the meanest capacity, that the OLD state of society will not bear one moment's comparison with the NEW; *and that the only real practical difficulty will be, to restrain men from rushing too precipitately from one to the other.*' p. 70.

If this account of Mr Owen's plan does not exhibit it as absurd and impracticable in itself, it may go far to show, that he is not the proper person for carrying it into effect. But we forbear to lay before our readers the marks of insanity which are crowded together towards the conclusion of this 'further development.' His mind has dwelt upon his own peculiar views so long and so intensely, that he seems to believe they are actually realized. '*Thus,*' says he, '*in the fulness of time, ere its commencement was well known, is the great work accomplished.*'

Mr Owen's extravagance, however, ought not to decide the question as to the propriety of employing the idle poor in the cultivation of such lands, as, whatever may be the cause, have not yet been brought into a productive state. The idea is not new, and not at first view very objectionable. The first tract in this collection was printed in 1696; and to John Bellers, its author, Mr Owen acknowledges himself indebted for his plan. Bellers's 'Proposals for raising a Colledge of Industry of all useful Trades and Husbandry,' is not to be approached, according to the fashion of that period, till we have cleared the outworks. There is, first, a quotation from Lord Chief Justice Hale; and then two addresses, one to the Lords and Commons assembled in Parliament, and another 'To the Thinking and Public-Spirited;' and, finally, an Introduction, in which he thus explains the object of his 'Colledge.'

'There is three things I aim at: First, Profit for the rich, (which will be life to the rest.) Secondly, A plentiful living for the poor, without difficulty. Thirdly, A good education for youth, that may tend to prepare their souls into the nature of the good ground.

'However prevalent arguments of charity may be to some, when profit is joyned with it, it will raise most money, provide for most people, hold longest, and do most good: for what sap is to a tree, that profit is to all business, by increasing and keeping it alive; so employing the poor, excells the barren keeping them; in the first, the increase of the poor is no burthen (but advantage), because their conveniencies increase with them; but in the latter, there is no strength or relief but what they have from others, who possibly may sometimes think they have little enough for themselves.

'As a good and plentiful living must be the poor's encouragement; so their increase, the advantage of the rich; Without them, they

cannot be rich; for if one had a hundred thousand acres of land, and as many pounds in money, and as many cattle, without a labourer, what would the rich man be, but a labourer? And as the labourers make men rich, so the more labourers, there will be the more rich men (where there is land to employ and provide for them.) Therefore I think it the interest of the rich to encourage the honest labourers marrying at full age; but by the want of it, it seems to me the world is out of frame, and not understanding its own interest. The labour of the poor being the mines of the rich.'

'And its as much more charity,' he afterwards observes, 'to put the poor in a way to live by honest labour, than to maintain them idle, as it would be to set a man's broken leg, that he might go himself, rather than always carry him.'

Bellers's college was to consist of 300 people of all trades; but the labour of 200 was to be sufficient for the whole, and that of 100 would, therefore, 'be profit for the founders.' He goes into detail with some minuteness, and, not content with displaying its advantages, is at some pains to answer objections; but it does not appear to have been ever tried.

Mr Owen has also called in the religious society called *Shakers*, in support of his principle of combined labour and expenditure. In the recent publications on America, the manners of this singular sect have been frequently described. But though a community of property be established among them, there is a remarkable difference between them and Mr Owen's villagers, in this, that the Shakers do not marry; and further, religion, a stronger bond of connexion than any thing which Mr Owen's system admits, is the leading principle of their association. These enlightened people believe 'their own to be the only true faith: 'they consider all other societies and persons as composing the 'world that lieth in wickedness.'

But in regard to the employment of those who cannot find employment otherwise, and who must, according to the present Poor-laws, be supported in idleness, or in labour nearly as unproductive, the cultivation of land to which private interest has not extended its efforts, seems to present a very ready, and, at first view, a most beneficial resource. It is natural to ask, When there are so many hands idle, and so much work to be done, why are they not so employed? The question is not, whether it would be the interest of a private individual to direct his capital into this channel; but whether, though the labour of these people upon the land might not be profitable in a commercial point of view, this mode of employment does not possess recommendations, both in respect to public economy and the morals of the lower classes, far superior to the present sys-

tem of administering relief. Parish farms have been proposed, and recommended, we believe, from very high authority. It is probable enough, that they would not yield so large a surplus, after defraying the expenses of cultivation, as private farms in similar circumstances. But the question is, not about profit, but about diminishing a burden which is constantly becoming more heavy; a choice between two evils. The same objections that have been made to the employment of the poor in manufactures, do not seem to apply to their labours in cultivation; for there is no danger of overstocking the market with agricultural produce. The only danger might be, that men would prefer this kind of labour, where it might not be easy to subject them to such close inspection and control as on private farms, to employment under common farmers; but wages somewhat lower, in the former situation, would obviate any such consequence. Besides this, such establishments would bring the wages of country labour to their natural level; farmers would be obliged to pay wages in the actual shape of wages, and not partly in the shape of Poor-rates; and they could not possibly lose by the change. If the natural rate of wages, for instance, was 12s. a week, and the parish farmers paid their labourers only 10s., and employed all the idle able-bodied men, allowing nothing to those employed by common farmers in addition to their wages; this would have the effect of abolishing the present system, by which Poor-rates are enhanced for the benefit of individuals. As long as the law directs that employment shall be found for all who want it, or that they shall be maintained in idleness, there can be no sort of employment found that is liable to fewer objections than agricultural labour.

The difficulty of managing a concern of this kind, would seem to be less than has been commonly imagined. Absurd as it would be to place out of view the natural love of indolence, or the collision of the passions, in estimating the probable results of such a plan as Mr Owen's, it is nevertheless consistent with recent experience, that men may be trained to act in concert, by other motives than the constant fear of punishment. Fellenberg has given a striking example of this in Switzerland, and in the case of agricultural labour too; and every one has heard of the wonderful reformation effected upon the very worst subjects in our own country, by the benevolent labours of a few females.

As we have not yet seen the details of Sir John Sinclair's plan of spade-cultivation, it is impossible to form any opinion of its probable advantages or disadvantages; yet it strikes us, at first view, as of a very questionable nature. A large capital, in the

present instance a million it is said, must be found, in the first place, for the land, the buildings, the expenses of cultivation, including the maintenance of the labourer till his first crops are reaped; and thereafter, we suspect, as much more would soon be wanted to keep the machine a-going,—to keep the labourers and their families from starving. In saying this, we take it for granted that they are to be set down on waste lands, not susceptible of the ordinary mode of culture by the plough. But, give them what land you please, unless it be garden ground near a large town, and the whole produce will be consumed on the spot in common years; and, in such as are unfavourable, a small deficit must be alarmingly great, to people who have no means of purchasing food,—nothing to give in exchange for it. It is needless to remark how inconsistent it is with the established maxims of political economy, to employ a costly instrument of production in preference to a comparatively cheap one; nor to look forward to the increase of population for bringing ruin on the scheme: We have only to look at it in its most obvious and simple form, to be assured that it would, in a very few years, add to the sum of human misery, instead of diminishing it; unless there be some *vis medicatrix* in Sir John's regulations, calculated to arrest the natural progress of circumstances.

Speaking of independent labourers, and not of paupers, it seems quite a hopeless task to attempt improving their condition, by giving them a few acres of land for the purpose of cultivation. Small farmers, at easy rents, may thrive upon good land, especially if it be kept chiefly in pasture; but the produce of tillage land must be very great, to bear the necessarily expensive cultivation of small farms;—poor lands certainly will not bear it. There has never, probably, been an instance of a man cultivating 10 or 15 acres of land, not worth 20s. an acre to a common farmer, so as to derive a decent livelihood from it, even though it were his own.

ART. II.—*A Treatise on Spinning Machinery, illustrated with Plans of different Machines made use of in that Art; from the Spindle and Distaff of the Ancients, to the Machines which have been invented or improved by the Moderns. With some Preliminary Observations, tending to show that the Arts of Spinning, Weaving, and Sewing, were invented by the ingenuity of females. And a Postscript, including an interesting account of the mode of spinning yarn in Ireland.* By ANDREW GRAY, Author of the Ploughwright's Assistant, and Experienced Millwright. Edinburgh, Constable & Co. 1819.

THIS is the work of a deserving old man, to whom the public are already indebted for two very useful Practical Treatises,

which convey more valuable information to the agricultural artisan, than any recent works of the kind with which we are acquainted. The great merit of Mr Gray's former publications, besides the accuracy and clearness of his figures and descriptions, is, that they contain nothing but what is calculated to be immediately useful to those for whom he writes; while, with a little attention, they become perfectly intelligible to persons the least acquainted with machinery. His instructions are founded on his own practice and observation, during a long life, rather than on the abstract principles of mechanics; with which, though he must be well acquainted with them, he has thought it less necessary to occupy his readers.

The object of the present work, as announced in its title, may appear to be somewhat different from that of his former ones, but it is probably not the less interesting on that account; and certainly he may safely look forward to the patronage of a circle possessing greater influence than the mechanic or artisan. The ingenious and important inventions of which he treats, are traced in so satisfactory a manner to a female origin, that not only every industrious housewife must be his friend, but also every lady who loves to dress either comfortably or elegantly; that is, of course, all the sex;—to say nothing of the actual *spinster*, to whom the book will be highly useful.

Though we do not profess to be skilled in the mysteries of spinning and sewing, yet we have read the book from end to end with much satisfaction, and we hope with some improvement. Besides a Dedication to an Irish lady, a distinguished patroness of these arts, it contains an Introduction that must be highly gratifying to every reader of the fair sex; succeeded by an ample description of the plates, which are ten in number, of a larger size than the book itself, well executed, and completely filled. The first two plates are occupied with instruments for preparing the flax for spinning, so that Mr Gray has so far done more than the title of his treatise promises; the third, fourth and fifth, exhibit the common domestic implements still every where employed in spinning, with their latest improvements; and the remaining five are devoted to the more complicated machinery of large manufacturing establishments. We have no doubt that all the figures are accurate and intelligible, for Mr Gray has been long in the practice of teaching the drawing, and also of making models, of what he describes. This latter branch, by the by, has not been so much encouraged as it ought to be. Distinguished foreigners, we understand, are glad to avail themselves of Mr Gray's talents in modelling, as the most certain means of transferring our improvements to their own agricultural machinery.

BRANCH III.

Agricultural Intelligence.

The winter has been as much milder than usual, as the last summer was warmer; with a few exceptions, indeed, the last three months have been more favourable to agricultural operations, and vegetation has been seldomer interrupted than we often find to be the case in the present and two succeeding months. Labour, and ploughing in particular, is therefore more forward than usual. Fodder, which was far from being abundant, was saved so much from the Cattle remaining on their Pastures later than usual, that it is now considered sufficient to carry them forward to grass. The young Wheats became so luxuriant, that, in several parts of Scotland, as well as pretty generally in some of the English counties, it was thought necessary to eat them down with Sheep, a thing which rarely occurs in November or December anywhere, and almost never in this northern climate. Turnips continued growing till they became very generally, in this part of the island, a very large crop, of greater size perhaps, in some instances, than value; for we hear complaints that Sheep and Cattle have not made the usual progress with them; and, at any rate, there is reason to doubt, whether the grower, who feeds them off with Stock bought in about the end of harvest, when prices were so high, will be paid by the present prices of fat.

All kinds of grain have fallen since our last. The ports were opened on the 15th November, but will probably be shut, though for Wheat only, by the middle of the present month. But, as the last three months is not the season for importing largely, the fall of prices, we imagine, must have been chiefly owing to supplies of our own growth. Barley has all along been in greater demand, and higher in proportion, than any other kind of grain; and Beans, till some large importations were made from the Mediterranean, rose in England nearly to the price of Wheat.

Petitions to Parliament have been extensively circulated, and numerously signed, in many parts of England, to procure a repeal of the Corn Laws; not, as might be supposed, by the mercantile or manufacturing classes, but by farmers. Their object is, to have protecting duties substituted for the present restrictions on importation, and to extend these duties to almost every variety of our land produce, such as Hemp, Flax, Seeds, Hides, Tallow, &c. as well as Corn. One Petition has been already presented to Parliament, where it has met so unfavourable a reception, as may probably set the ques-

tion to rest for the present. The proposal to agitate the subject at present was ill-timed, even if the principle had been more free from challenge, than in its extensive application it certainly is. It would be better to Petition for a faithful execution of the present Corn Laws, especially in regard to the mode of making the returns, and forming the averages which regulate importation. The attention of Parliament has, however, been drawn towards this part of the system, in consequence of some important errors having been committed lately in making up these averages; but there seems to be no disposition, on the part of Government, to enter into the subject. Ministers know, from very recent experience, that Corn Laws cannot be moved from the shelf without scattering about much unwholesome dust, and occasioning, perhaps, many inflammatory diseases among the lieges.

In Scotland, at least, and we hope in England also, the condition of all classes of the country population has been much improved. Labourers have better wages, and, in most parts, full employment; all sorts of land produce, Live-Stock in particular, have been in demand—grain, at prices very nearly such as sober calculators think it can be grown for with advantage to all parties; and Cattle and Sheep, down to the beginning of winter, perhaps at something more: and rents are now well paid. This, therefore, is certainly not the time to agitate the public mind with further restrictions on the Corn Trade.

The use of Salt, both as manure, and in feeding, will soon be decided one way or other. It is under trial, we observe, in Aberdeenshire; and we hope in several other places. It will give us pleasure to lay before our readers, the well authenticated results of experiments, wherever they may be made.

Average Prices of Corn in Scotland, by the Quarter of Eight Winchester Bushels, and of Oatmeal, per boll of 140 *lib. Avoirdupois, for the four weeks preceding* 15*th January last.*

Wheat 68s. 5d.	Barley 48s. 7d.	Beans 49s. 11d.	Oatmeal 23s. 10d.
Rye.... 51s. 8d.	Oats 29s. 4d.	Peas 50s. 7d.	Bear or Big 41s. 6d.

Of the Twelve Maritime Districts, for the Week ending 23*d January.*

Wheat.	Rye.	Barley.	Oats.	Beans.	Peas.
77s. 6d.	55s. 6d.	61s. 11d.	32s. 8d.	68s. 11d.	68s. 3d.

Of all England and Wales, for the Week ending 23*d January.*

Wheat 79s. 5d.	Barley 64s. 5d.	Beans 71s. 9d.	Oatmeal 38s. 1d.
Rye.... 56s. 7d.	Oats.. 34s. 10d.	Peas 70s. 5d.	Bear or Big —

SCOTLAND.

Aberdeenshire Quarterly Report.

An excellent harvest has been succeeded by the mildest winter ever remembered; and farm operations of all kinds are unusually far advanced;—in some instances the *unnatural* mildness of the weather has induced the Turnip crop to shoot, which will certainly be much against them should severe frosts set in next month. Cattle have fed uncommonly well, and maintained a price which pays the farmer handsomely—55s. to 63s. per cwt. sink.

The Grain crop has turned out (as was predicted) abundant; and the demand has been good, although considerably damped of late. Wheat has been least in demand, at from 33s. to 37s. 6d.; and in some instances, 38s. per Linlithgow boll. Barley has been sold at 38s. to 40s. per Aberdeen boll (6½ bushels); and Oats (Potatoe) at 23s. to 26s. and 27s.; Bigg 32s. to 37s. Farmers have recovered their spirits, and rents have been well paid.

In consequence of the recommendation of the Highland Society, a cargo of rock salt has been brought for trial; and, although the effect cannot yet be known on land, there is not the smallest doubt of its answering well with Stock. They eat straw and Hay sprinkled with the brine of it dissolved, greedily; and it seems very rapidly to improve their coats.

Hay and Straw will not be abundant, unless the Spring sets early in; and the Grain will be sooner than usual out of the farmer's hands. Indeed, the Bear and Barley are already nearly exhausted. —30*th January.*

Upper Annandale Quarterly Report.

We have now, at last, about a week of moderate frost; and though it is accompanied wtth partial falls and softenings, it is generally expected to be of considerable use in pulverizing the ploughed lands, and in destroying noxious weeds and insects.

The labours of the plough are well advanced; the stubbles and most of the leys being already turned over, and only the Turnip lands remaining for a dry time. The crops also have been fully above what was expected; for though the grain is rather small, the produce in meal is a full average, according to the quantity of grain. Potatoes have also proved both good and abundant. The prices, in consequence, are now on the decline.

Hay has been greatly spared by the consumers, in a season so unusually rich in pasture Grass even to the latter end of winter; but still the demand promises to be considerable, as the quantity was unusually small on the sown fields. Meadow hay was good and abundant also; but the numbers and value of cattle being increased, there is a prospect of its being all consumed.

Potatoes were growing, both in pits and houses, and some injury must have occurred in this respect; though it is hoped the present weather will check it. The straw thatch on most of the Corn and

Hay ricks and stacks, never grew so much before; and this appears to require particular attention. Flax has turned out less productive than was expected.

Labour is not so much in demand as the late improved prices appeared to warrant. Many of the farmers are deficient in capital, to expend liberally in improvements, and they are also in some doubt how far it is their wisdom to go in this line; dreading the probable termination of the discounts allowed them out of their very high rents, and viewing that measure as destruction.—Irish labourers have now found their way in such numbers into this country, as to reduce the prices very considerably and sensibly.

Rents of sheep farms are not now so extravagant as they were formerly; though the produce of such farms is by much the highest now on sale in the markets of this country. The Cattle farmer, indeed, comes in for his proportion; but arable farms ought not to reach their highest rents by at least 30 per cent. It is the dread of these that so much paralyzes the farmer's exertions, together with the sensible diminution of his capital.

Could it only be rendered the interest of the farmer liberally to improve, and were the labourers fully and judiciously employed, both natives and strangers, we have ample field on which to employ them for many years; and very important, indeed, to this country, would the effects be;—waste lands rendered productive in crops and rents—the poor well occupied—and bread, and to spare, in our land.

Not a single gold sovereign has yet been seen in the county circulation line; and the banks are taking such measures as ought to awaken the attention of the country. Large premiums, and secrecy together, may induce conspiracies against the lives of innocent men. The public ought not to forget the fate of Messrs Falconar and Bruce at Dundee.—*23d January.*

Ayrshire Quarterly Report.

The fine weather that we had at the date of last Report, continued till the first of January; the fields were as green as in the end of May, and the cattle pasturing as freely on them. The small birds were building their nests in many places. I was well assured, that in the end of November, in the high parish of Muirkirk, a nest was found with two new-laid eggs in it. Flowers of various kinds in the gardens in blossom. I saw even the foxglove in blossom; and a dish of cresses was no uncommon thing on the table in these months; so late as the 24th, I had a dish of them from my own garden. Labour was in great forwardness, and the mountain Flocks in as good order as at the 1st of November. During the month of January, we have had some heavy falls of rain, but not of long continuance, with some very high winds, particularly on the night of the 10th, and morning of the 11th, which unroofed some houses, and overturned stacks. During the month, a number of vessels have been driven ashore; and, from one, nineteen persons were drowned. On the stubble fields where no Cattle have pastured, from the shaken corn

on the 21st and 22d of September there has risen a most beautiful braird, which, with fresh shoots from the roots of the old stubble, (what I have never seen before), makes them look like a fine field of artificial grasses. The Wheat has a most beautiful appearance; but that which was early sown may be too forward, and, if the Spring is bad, may be a lost crop. The artificial Grasses have a fine appearance; but much depends on the Spring. On the 15th we had a slight shower of snow, the first this year; but the mountains cannot be said to have put on their winter garb till the 27th.

At our fair, on the 19th, Woollen Cloth fell much in price. There was a good show of Horses, both for the saddle and agriculture, that brought advanced prices. Labour of all kinds is plentiful, and wages reasonable. Peace and contentment appear in every countenance; and few depredations are committed. Provisions of all kinds have rather fallen this quarter; and are now retailing at the following prices.—Beef, from 6d. to 10d.; Mutton, from 7d. to 9d.; Veal, from 5d. to 9d.; Butter, from 1s. 6d. to 1s. 8d. per lib. of 24 oz. Sweet milk Cheese from 12s. to 13s. per stone Tron. Oatmeal, 3s. per stone Amsterdam. Wheat, 33s. 3d.—*January* 30.

Banffshire Quarterly Report.

THE weather throughout this quarter has kept open and mild, to such an unusual degree, as to astonish the oldest person living; having never experienced the like at any former period. As there was little or no check to vegetation, the fields presented an appearance very unusual for the season; the Pastures in many instances being so abundant, that the Cattle were finding a subsistence out of doors long after the usual period of housing, almost equal to what might be expected during the summer months. Some early sown Wheat seemed to be getting too far on for the season, a thing which rarely occurs in this quarter; and the Turnips, which have come to be a weighty crop, were also running fast to seed; but fortunately, within these eight or ten days, we have had several nights of very sharp frost, which seems to have entirely averted this threatened evil. We have had but one slight fall of snow, which went off in a day or two. From this state of the weather, farm labour, as may be supposed, is in a very advanced state. Ploughing has met with little or no interruption, and been most seasonably performed—in many instances it is almost finished; and as the frost seems to be continuing, the carting out of manure will go on with despatch. In short, farm work in every department has been rarely so far advanced at this season. As might be expected, a great saving of provender has been made; and the Cattle upon Turnips were never seen to thrive better. Many lots of well fed beasts will be found in this county, as soon as the dealers can set out with them. There will be abundance of keeping to carry on the Stock until the usual period. As mentioned in last Report, a considerable quantity of Hay was bought up for the London market; but it is apprehended, that the shipping of this article will not be found practicable; and of

course it must be disposed of again in the country. With regard to the produce of this crop, the quantity of grain already delivered to the merchant is far beyond expectation. The Oats, although not above par as to quality, are giving an immense return from the straw; but the Barley both exceeds in quantity and quality that of most preceding crops. The two-rowed Barley is not generally sown, but along the coast; and this year a large proportion of it is found to weigh 20 stone Dutch per boll of 128 Scots pints; and in the interior, the Bear or Big is found, in many instances, to weigh 19 stone and upwards, same measure. Wheat, although not much sown, turns out to be a fair crop, and of fine quality; and what has been brought to market has fetched about 36s. per boll of 88 Scots pints; but if a regular market for Barley could be depended on, this article would almost disappear in this quarter.—This crop may be reported as far exceeding an average; and, for the same bulk of straw, to exceed the produce of most years in remembrance. A very brisk demand prevailed for grain about Martinmas; and a large proportion of the best Barley was purchased from 35s. to 40s. per boll. Also considerable sales of Potato-Oats at 24s. and 26s. per boll; but the markets have declined considerably of late. Barley is now come to 30s. and 32s., and best Oats 20s. and 22s. per boll. Oatmeal, in the market, in retail, is 1s. 6d. per peck of 8 lib. Dutch. Butcher-meat at present does not exceed 8s. per stone Dutch, sinking offal; but is expected to be much higher when the Spring commences. At our hiring markets, a little before Martinmas, servants' wages were a trifle higher than the preceding half year. Ploughmen from 4*l.* 10s. to 5*l.* for six months, and maintenance in the house. Labourers of almost every description are finding employment this season. A new harbour building at Banff, and another at M'Duff, employ a number of men; and the making of nets for the herring fishery, which is like to prove a great source of wealth upon this coast, keeps a number of women and children at work. The produce of last year, with regard to Corn, Cattle, and Fish, is quite unprecedented; which has afforded great relief to the country in every department; and the gloom which has for a long time overshaded us, may be said to be fast dispelling.—*24th January.*

Berwickshire Quarterly Report.

Since the date of last Report, October 24th, the weather has been such as is very rarely seen in our variable climate. October concluded with the heat and verdure of summer; which continued, with very little abatement, during the course of November. In the latter month, there were fifteen days on which there was less or more rain. On the 6th, it fell nearly all day; it was still heavier on the 10th, and made the rivers overflow their banks. On the 23d, the rain was mixed with sleet, on our highest hills, which, for the first time this season, made the top of Cheviot, the loftiest mountain in our vicinity, exhibit, for a very short while, the garb of winter. The first and only ice we observed during the month, was on the morn-

ing of the 25th. At noon of the 28th, the thermometer in the shade in a northern exposure, stood at 49°. December was also uncommonly mild, with the exception of the 14th, 15th, 29th, 30th, and morning of the 31st, when there was pretty smart frost; and there were only nine days on which we had rain; but it was very moderate, except on the 20th, when the rivers and streams were nearly in full flood. On the morning of the 21st there was a sprinkling of snow on the tops of the Lammermuir hills. The temperature of January was only a little lower than that of the preceding month, till the 18th, when frost returned, with some very moderate showers of snow; and we have noted twelve days on which we have had rain, but no continued or heavy fall. It is only within these few days that the verdure of April or May began to wear off, and vegetation to cease. Mild as the season has been, it is not more than two or three weeks since we observed a few of the Turnips, which are a most abundant crop, and of uncommonly large size, running to seed. Anticipating, perhaps, a severe winter, in which they have been happily disappointed, the farmers have stored a greater quantity of this invaluable root than we ever remember in any former season. They have hitherto been less in demand, either by the acre or by the week, than usual; which has caused many who were wont to let their Turnips, to purchase Stock to consume them. The feeding Stock are in very fair condition; but, in many instances, are not making such rapid progress as in some former years, which is, perhaps, owing to the Turnips being overgrown, and therefore not so nutritive as in years of slower growth. In severer weather, too, Cattle may eat with greater avidity, and thus make quicker progress. There are now no fears of the want of fodder; of which much less has been consumed than ordinary by winterers, either at the stake or in the straw yard. In many instances, a good part of the young Cattle were in the fields till the end of November, and some still later. The growing Wheat never had a better appearance; and there is a greater breadth of this crop sown than usual. This process has continued till within these two weeks, on several fields, as they were cleared of Turnips.

At all our hiring markets, single farm servants of both sexes were in plenty, and a number did not find masters. Wages, of course, are very moderate. The ablest ploughmen get from 3*l.* to 4*l*, and young men of 16 to 18 from 2*l.* to 2*l.* 10*s.*; and female servants, fit for all work, from 30*s.* to 40*s.*, currency about 34*s.*, all with victuals, for the half year. There is no complaint of day labourers being out of employ, as draining and other kinds of work, which were in a great measure at a stand during the two last years, are now resumed. Owing to the early harvest, and fine weather, field labour is universally advanced. On many farms, the stubble fields were all ploughed by Martinmas, and some at that period had even begun to turn over the leys. There has been plenty of time to cart farm produce to the markets, which have been kept well stored, al-

though the prices have continued high. The Store Flocks, which were not tainted last year, are in good condition. The rot in some instances has made its appearance, but the alarm is not as yet great; and it is hoped that comparatively little loss will be sustained from this cause. The prices of both Black Cattle and Sheep have kept sufficiently high during the quarter. At Greenlaw, October 29th, there was a middling show of Cattle; and they were nearly all sold at prices fully equal to preceding markets. At Dunse fair, on the 17th of November, there was a full show of fine Cattle, in forward condition for feeding, and also of winterers; but a much smaller proportion of prime fat than is usually presented in that market. Although there were few dealers from the South, the greater part were sold at high prices. Too much money was asked for those which returned unsold. Fat brought from 9s. 6d. to 10s. per stone Dutch, sinking the offals. Since that period, Cattle fed on Turnips have sold at from 8s. to 9s. 6d. per stone; Mutton, from 9s. to 11s. per ditto; both sold in retail from 6d. to 8d. per lib. Dutch;—and there has been a fair demand for both Black Cattle and Sheep. Pork, for the London market, has gone off freely at 7s. to 7s. 3d. per stone of 14 lib. Butter, per firkin, 56s. to 60s., and some of the very first quality a little higher. Ewe Cheese, 12s. to 14s. 6d. per stone, Trone weight.

The Grain market, which kept pretty steady during great part of the quarter, has been on the decline for two or three weeks past; and may be quoted at present—Wheat, 45s. to 50s.; Barley, 35s. to 38s.; Oats, 21s. to 25s.; Peas, 40s. to 42s.;—all per boll of six Winchester bushels. Oatmeal, 43s. to 48s. per load of 16 stones Dutch;—sold in retail from 3s. to 3s. 4d. Barley and Peas ditto, 2s. 6d. to 2s. 8d. per stone. Sack of Flour, 58s.; and the Quartern Loaf 10d. The prices of every species of farm produce are sufficient to indemnify the tenant who holds his lease at a fair rent, and are higher than the labourer can well afford. The policy, therefore, of introducing any measure with a view to enhance the price of grain at the present moment, is at least very questionable.—*January* 26.

Dumfries-shire Quarterly Report.

It is not much more than a week since any thing like winter weather set in. There has been less frost hitherto in this, than even in the two immediately preceding seasons. The temperature has been considerably higher; nor has there been so much rain or snow. We have had some days and nights of uncommonly high winds; in particular, during the night of the 10th current, there was a more violent storm than most people remember. There has been so little frost, that the plough may be said never to have been interrupted. That which was the most severe (though, in comparison with that of other years, *severe* it was not) occurred on the 28th December, but continued only for two or three days. It remains to be seen whether the want of it has any influence, good or bad, on the present year's crop. There have now been a few days of very variable weather—

vicissitudes of frost and thaw, and snow and rain. On the 24th it blew extremely hard, accompanied by a heavy fall of sleet and snow.

Ploughing, as may be inferred, is well forward on every farm: Indeed, there was probably never more ground gone over at this day of the year. Every farmer opining that enough is done in that way, heartily wishes for frost, that their straw-yards may be cleared of their long accumulated contents. In one respect this open weather has been most opportune, which is, that cattle were kept on grass much later than ordinary seasons admit of, and have been maintained on a smaller allowance of fodder than would otherwise have been required.

The nature of the crop on hand is now sufficiently ascertained; and it proves to be pretty much as was mentioned in the Report of November. Wheat being everywhere so excellent in quality, may be stated as an average produce; and it would seem to be so throughout the kingdom, as there is rather less demand for it than for other kinds of grain, and its value is comparatively low. Oats are also of good quality, but fall much short in the number of bushels *per* acre. Barley, though it was well filled, and weighs well, proves scanty indeed, as much, or perhaps more so, than it is ever recollected to have been. It brings a high price, which serves to console the grower for deficiency.

There is at present no market for Lean Cattle; but it is hoped that in a few weeks they will be inquired after for the Norfolk country markets.

The labourer is tolerably employed, but does not appear to obtain his former rate of wages. Perhaps he should not, as that was probably one of the articles of excess which brought the farmer to so low a state in past years. At the same time it must be confessed, that however adequate the wages of the house servant are who is lodged and fed with his employer, that the labourer with a young and numerous family to support, must find it difficult to do so at the present daily wages; and, fortunately for themselves and the whole community, they have still, generally speaking, a wholesome repugnance to parochial assistance, in this district particularly, where legal assessments have not been introduced.

Land for sale, and to be let, is rather plentiful at present. There seems no very keen competition for it in either way. The rate of letting ought, and will regulate the sale; and farmers now seem to think that they should have some little return for outlay, as well as those who vest their capital in other departments of business.

The present prices of corn are, Wheat from 8s. 6d. to 9s.; Barley, 6s. to 6s. 6d.; and Oats, 3s. to 3s. 6d. *per* Winchester bushel. Beef and Mutton bring from 6d. to 7d. *per* lib.; and Pork is about the same rate.—27. *January.*

Fifeshire Quarterly Report.

The weather of the preceding three months has been uniformly fresh, without either frost or snow for 48 hours at a time. In this

county, the pastures, through the whole winter, had a verdure at least equal to what is usual in April or May, and the cattle had the benefit of pasture almost every day, which has prevented the apprehended scarcity of fodder from the thinness of the oat crop, from being felt; and tillage, in no season at this period, was perhaps ever so far advanced; and the new Wheat and clover have come up beautifully, and have a flattering appearance.

As to the crops—Barley has turned out of fine quality, and the quantity equal to the farmer's expectation; and the demand has remained steady, although, for the last four weeks, the price has been declining, the fall being from 28s. to 32s. It is not expected to decline further.

Oats are of excellent quality, but deficient in quantity *per* acre.

Peas and Beans turned out good, both as to quantity and quality.

Potatoes large in quantity, and of the best possible quality. Notwithstanding the demand from London, the price has declined 2s. or 3s. *per* boll; and the quantity in the county still remains considerable.

Turnips. The crop very fine, and hitherto remain fresh and good, and have been of the greatest importance as winter food.

Cattle. The demand for these continues steady, at good, but not extravagant prices; and the young stock appear all in excellent condition.

Wheat, though much superior to the former year's in quality, was deficient in quantity, and through the whole season was sold at a lower price than Barley: 35s. *per* boll, it is believed, was nearly the average price *per* boll.

Oat-meal in great abundance, at 24s. *per* boll, and the price rather declining.

Manufacturers continue all in full employment, and at wages, low in their opinion, but beyond all doubt sufficient, at the present price of Oat-meal, to afford comfortable maintenance to them and their families.

Labourers are now also fully employed at 18d. *per* day.

The state of all classes of the community is evidently very much improved; and there is, comparatively, little to complain of at present.—1. *February.*

Forfarshire Quarterly Report.

Soon after the date of our last, heavy rains set in, which continued, with a few short intervals, until about the middle of December. Some patches of Oats and Barley, on the higher grounds, which continued in the fields, grew in the stook, or were rotten and lost. A tract of mild dry weather then set in, with occasional showers and boisterous winds, the latter of which did some partial damage to the shipping on the coast. We had a few nights of mild frost between Christmas and New-year's-day, and a few about the middle of this month; but excepting an occasional powdering on the Grampian mountains, we have had no snow, until after the middle of of this month, which whitened the whole country, but soon entirely

disappeared. Upon the whole, the last quarter has been uncommonly mild and genial, as much so as it usually is in the month of May, and much more so than the oldest person remembers this season to have been. Some evenings, about sunset, the midges were seen flying about.

The mildness of the season has occasioned the ploughing, the carting of manure, and other preparations for the spring seed, to be much more forwarded than ever they were known to be. The pastures have always remained green, and in a growing state, which has occasioned a great saving of fodder. The Turnips which were earliest sown are all shooting, and some of them have thrown out flowers in the dead of winter; to prevent which, a great proportion of them have been stacked or housed. Some Wheat was sown before the end of last August, and much of it is thought to be too far advanced in its growth; so that some farmers talk of ploughing it down, and substituting Barley in its place. It is hoped the late frost may prevent the necessity of this, although it has been very mild, and of short continuance. The sown Grasses are also in a very healthy state, and exhibit a luxuriant show of clover, which was very deficient last year.

The Prices have been rather on the decline since our last Report; but have been subject to so much fluctuation, that we must defer a particular statement of them until our next, when it may be presumed they may have become more steady. At present it may only be necessary to observe, that, at the date of our last, best Barley brought from 40s. to 43s., now only from 36s. to 38s. *per* boll. Best Wheat was then from 39s. to 42s., now only from 32s. to 38s., ditto; and it is a singular circumstance, that good Barley has always been higher than Wheat this season. Oatmeal was formerly from 26s. to 27s., and now it scarcely fetches 23s. *per* boll of 8 stones, Dutch. The prices of all sorts of Animals, and of Wool, still keep up, and are as high as they were at any time during the war. Manufactures have revived considerably; and there is much more demand for labour than has been for some years past; but there is a great complaint against dealers for raising the price of Lint, so as to reduce the manufacturers' profits, and to put it out of their power to grant such wages to their workmen as they would otherwise be disposed to give.

A considerable subscription has been raised to make an Iron Railway between Brechin and Montrose, a distance of from seven to eight miles. Some, however, contend, that a Canal is preferable, as it would only need to be made from three to four miles, from the point where the South Esk ceases to be navigable. They insist that a Railway would not be much more serviceable than the present toll-road, which is excellent; that a Canal might be carried along the valley of the South Esk, and of the Lemno, until it reached Forfar, in the centre of Strathmore, with a lockage of about 200 feet; or it might be converted into a branch of the proposed Canal from A-

berdeen to the Clyde below Glasgow, should this great national improvement be ever carried into effect. Professional men, of the highest eminence, have given an opinion, that the proposed Canal between Arbroath and Forfar is not likely to prove a productive concern, if it stop at Forfar; but that it will be highly productive if carried south-westward through Strathmore; and that the further it is extended, the more productive it will become. Now this Canal may be extended along the north side of Strathmore, to Dunkeld upon the Tay, without a single lock after it passes Forfar; and it will hardly require any aqueduct bridges of more than a single arch. If an aqueduct bridge over the Tay be found too expensive, it may be crossed by a dam or wear; then it may be carried, upon the same level, about 200 feet above the sea, to Crieff, which is about 20 miles south-west from Perth, sending off a branch to the Tay at Perth. Passing a high ridge between Muthil and Blackford, the same Canal may be extended from Strathallan, near Dumblane, to Dumbuck, on the Clyde, without a lock, sending off a branch to the Forth, near Stirling. Thus, from Aberdeen to the Clyde, at Dumglass or Dumbarton Castle, there is a level tract, hardly exceeding 200 feet above the level of the sea, which Nature seems to have intended for a Canal, and which is only interrupted by a ridge of about 400 feet between Muthil and Blackford. We conceive that all the towns and counties from Aberdeen to Glasgow, Paisley, &c. should take this great national improvement into consideration, which would complete the internal navigation of Scotland; and that the long-intended Canals from Stirling to Thornhill or Callendar; from Perth to Crieff; with those projected in this county; should all be made in reference to this as the main trunk, and upon one uniform plan.

Typhus fever has prevailed considerably in some of our towns; and although our medical gentlemen have published excellent rules for destroying the infection, or to prevent it from spreading, it is difficult to prevail upon the people to attend to them. About Dundee and its neighbourhood we have also had a visitation of canine madness; and the Sheriff has ordered all dogs to be confined, imposing penalties on those who neglect. At Dundee, three females are known to have died of the hydrophobia. The last was a young girl, who was bitten on the cheek. A medical gentleman is said to have cut out the bitten part; to have washed it with oxymuriatic acid or chlorine; to have made all the external applications, as well as administered all the internal medicines which the case required;—all without effect; for the young woman began to exhibit the same horror at liquids, with the other symptoms, and died at the same distance of time, after she was bitten, with those who went before her. A great mistake, however, appears to have been committed, in allowing 70 hours to elapse before medical assistance was called for. By this time the virus appears to have gone into the blood, from which it could not be expelled. Many others are reported to have been bit-

ten; but they instantly cut out the bitten part, and procured medical assistance without loss of time. It is hoped these may escape.—We wish to know what some of your learned friends and correspondents may say to this, who used to insist that mad dogs, and hydrophobia, were as absurd as the antiquated notions about witches and warlocks.—28. *January.*

Letter from Glasgow, 30th January.

WITH the exception of a few stormy days, which happened in the course of the last fortnight, and occasioned considerable damage on the west coast, the weather, since the date of last Report, has continued extremely mild and open, and perhaps more genial than the greater part of the summer and autumn of 1817. Frost occurred but seldom, was never intense, and always of so short continuance as hardly ever to occasion the slightest suspension of plough labour; so that the greater part of the lands intended for Oat seed, are already prepared for its reception. The Pasture fields exhibit a verdure and luxuriance which have perhaps never been surpassed at this period of the year. The Wheats and Sown Grasses also exhibit a very forward and vigorous appearance. The advanced state of the former, many weeks ago, excited considerable apprehension for their safety during winter. Owing to the mildness of the weather, however, they have hitherto escaped uninjured; and now that the season is so far advanced, there is ground to hope that no frost will set in sufficient to affect them to any serious extent; while the great progress which they have already made, gives reason to anticipate a very early Wheat harvest.

Our importations of grain from various quarters, although of late they have not been made extensively from any particular place, have kept this market fully supplied. Prices are consequently low, and will no doubt continue so till the middle of next month, when the shutting of the ports against the importation of foreign Wheat will in all probability improve the prices of that grain.

No English Barley has been imported this season. Our importations of that grain have been from the Baltic, and the north of Scotland. Our supplies of Wheat have been from our own neighbourhood, excepting a few cargoes from St Petersburgh; and our importations of Oats have been derived, as usual, from Ireland, though less extensively than last year; the produce of our last harvest being both abundant and of excellent quality. Early in the winter we had a considerable quantity of Beans from the Mediterranean; and, of late, our supplies of that article have been chiefly from the north of Scotland, and the Falkirk and Stirling markets.

Present State of the Glasgow Market.

Wheats,	Dantzig,	38s. – 40s.	per boll of 240 lib.
	Riga and St Petersburgh,	33s. – 35s.	
	Old British	36s. – 39s.	
	New do.	36s. – 38s.	
Barley,	English,	45s. – 47s.	per boll Stirlingshire measure.
	Scots,	40s. – 43s.	
	Foreign,	38s. – 41s.	

Oats,	Irish,	24s. – 27s.	per boll of 264 lib.
	Scots,	24s. – 25s.	
Beans and Peas,	Scots,	26s. – 29s.	per boll Stirlingshire measure.
	Foreign,	25s. – 27s.	
Oatmeal,		24s. – 25s.	per boll of 140 lib.

Inverness-shire Quarterly Report.

SINCE the date of our last Report, the weather has exhibited an unparalleled degree of mildness, and indeed it is only within the last ten days that we have had any appearance of winter; yet still the season is comparatively uncommonly favourable. This has afforded extraordinary facility to the progress of farm labour, and consequently fully two-thirds of the ploughing is completed, in all the districts of the county from whence we have been able to obtain intelligence; from which it is to be naturally hoped, that the spring department of husbandry operations will be got very early accomplished.

The quantity of grain has been calculated to be about a fair average; and the quality has, in general, proved most excellent. The scarcity of straw, occasioned by the dry summer, as alluded to in our last, has produced no bad effect; as, from the favourable weather, the tenants, even in the most elevated districts of the county, were able to graze their stock, and had therefore little occasion to have recourse to their fodder.

The appearance of the Wheat braird in this county is in general good;—in some rich lands it is so luxuriant that apprehensions are entertained of its being injured by the spring frosts. The Turnip crop proved very productive; but, from the warmth of the season, their growth was only checked a few days ago; and about a half of the crop may be fairly considered to have seeded, and the fields now appear in blossom. This must occasion considerable loss to the Turnip farmers.

Black Cattle still maintain their prices; and the demand for them, at the recent Trysts, has been unusually great; and it is anticipated, that, if the same demand continue during the ensuing season, the prices will rise considerably, owing to the excellent condition into which cattle have been put, by the fine grazing afforded by the mildness of the winter. The season has been equally propitious for the Sheep farmer; and, if the lambing time prove mild, he may confidently look forward to an adequate return. All these promising appearances, if realized, must materially contribute to enable the farmers to recover from their embarrassments.

Very little speculation is entered into here in the Corn trade, until the months of February and March; but the prices are fully maintained. Prices of Butcher Meat have advanced a little since our last.—*25th January.*

Kincardineshire Quarterly Report.

THE weather, since the date of last Report, has been unprecedentedly open and genial for the season. Vegetation, in consequence, continued to a much later period than usual; and the grain that was

shaken on the fields in autumn, soon got into a beautiful braird, both where ploughed and not ploughed down. It was really surprising to see how thick and regular it in many instances appeared.

A good deal of rain fell during November, generally from the S. and SE. On the morning of the 18th, there was a pretty smart frost, with a little snow on the tops of the higher Grampians, which was the first of either this season. From this to the 28th December, the weather was mild and hazy, with now and then heavy rains. Subsequent to this, a week or so of frost ensued, which was followed by fresh ploughing weather until the 16th or 17th; and ever since it has been varied by fresh, frost, wind, and rain, with a faint colouring of snow on the 19th, which soon disappeared.

Winter ploughing is in many instances nearly finished, and, almost without an exception, uncommonly well forward. In some situations the plough has not been stopt, except partially within these eight or nine days, during the season. In consequence of the mildness of the season, the young Wheats are very forward:—doubts have indeed been expressed of their being, in many cases, over far advanced; and in order to remedy the evil, some patches have been for a short time depastured with sheep, which is a very uncommon circumstance in this part of the country. Turnips turn out a good crop; but, till lately, were running fast to seed:—They are still well clad with shaws: which will be of advantage in protecting them from the frost, should any severe tracts of it ensue. The storing of this valuable root is beginning to be rather more generally adopted. Perhaps one of the greatest practitioners of this apparently economical system, in this district, is Baron Sir John Stuart. The plan at present practised on his farm at Fettercairn, is shortly as follows. As soon as the Turnips arrive at maturity, which is generally in November, if the weather is fresh and dry, they are pulled and carted to the place where they are meant to be stored; which is generally in, or adjacent to, the turnip field, for the sake of despatch. The shaws and roots are then neatly taken off, and the Turnips piled up into rows of from six to seven feet at bottom, in a straight tapering form, until they terminate in a point at the top. They are then carefully thatched with straw or rushes; the ropes fastened to a spar at the bottom on each side; and a rut made with a spade close to the heap, in a sloping direction, in order to carry off the rain. The shaws are spread out in small heaps to the cattle, as occasion requires. Several acres of turnip are usually stored in this manner, and are reported to keep well. There is generally, however, some part unstored, which is used in fresh weather.

Owing to the apparent scantiness of fodder, in many instances, cattle have been getting a large allowance of Turnip; and, in some situations, young cattle have been kept in the fields during the day-time all the winter over. Potatoes are tolerably plentiful, and of the best quality. Stackyards are fast diminishing in bulk; which, in many instances, is small for the season; so that if a late, hard spring ensue, fodder must

of necessity be scarce. All kinds of grain, however, yield uncommonly well to the straw; and the worst of it is of medium quality. Barley, in particular, is very fine; but most of it is now exported. Prime Barley supports its price; but Oats, and other descriptions of grain have fallen, and are at present in very limited demand; as are also Live Stock, both fat and lean.—*26th January.*

Quarterly Report for the Stewartry of Kirkcudbright.

THE almost unprecedented mildness of the weather during the month of November, promoted vegetation in an extraordinary degree; the Pastures, upon good land, in place of falling off, actually improved; Turnips grew still a heavier crop; and Cattle, in place of requiring fodder, were fully fed on their pastures. The same mild weather, continued through almost the whole of the month of December; but, although the winter passed so far over us without letting us feel any of its rigour, it is very much to be doubted if this will contribute to the produce of the ensuing crop.

The early sown Wheats had attained a degree of luxuriance and forwardness, almost unprecedented in this climate at that season of the year; in so much, that, on some early sown fields on good land, they were approaching to the formation of the ear. Since the commencement of the New Year, the weather has been very variable. Partial frosts, high winds, and a good deal of rain, with some thunder and lightning, have alternately succeeded each other; and the premature vegetation has received a seasonable check. The labours of the field were never in greater forwardness at this season of the year; though frost would now be desirable, for the purpose of carrying out manure.

The last year's crop, though not bulky, turns well out when thrashed. Wheat and Barley are of excellent quality; Oats rather deficient. The prices of grain have continued steady since the commencement of the quarter; and are such as to make a fair return to the farmer, and not too high for the tradesman and labourer. Exportation has gone on to the Liverpool, and other English markets, at the following prices; viz.—Wheat, from 8s. to 9s. per Winchester bushel; Barley, from 6s. to 7s. per do.; and Potato-Oats, from 3s. 4d. to 3s. 6d. per do. Oatmeal, from 2s. 6d. to 2s. 9d. per stone of 17½ lib.

Cattle and Sheep continue at high prices. Butcher Meat—Beef, from 7s. to 9s. per stone of 16 lib.; Mutton, from 5d. to 7d. per lib. of 16 oz.

Potatoes were in good demand at the commencement of the quarter, at high prices, but have since declined considerably; nevertheless, it is expected that, before the end of next quarter, they will again advance.

Every thing regarding the general interests of the county seems to go smoothly on. Produce has attained that standard which enables the farmer to pay his rent, and fill that respectable situation which he holds in society with comfort to himself. The improvements of the country go on with renovated activity, which gives full employment

to the labourer and mechanic; and the landlord may now congratulate himself on the increasing value of land, and the punctuality of the payment of his rent.—*26th January.*

Lanarkshire Quarterly Report.

The weather has been milder through the winter quarter now ending, than it has been during any other winter in the memory of the oldest persons now alive. There was no frost that could have injured even the stems of Potatoes, or the green foliage of clover, until the 10th December. Even then, the frost was mild, and only continued about three days; and, since that time, it has never lasted twenty-four hours, and often but for a shorter period at one time. The mildness of the months of November and December (with the exception of a few days) resembled summer more than winter; and, though there were occasionally showers of rain during these months, yet the weather was generally dry, and uncommonly warm and pleasant for that season of the year. But heavy rains, high winds, and sometimes frost, have been frequent in January. Snow was not seen, even on Tinto, till the middle of January; and it has only covered once, about two inches in depth, the arable districts of this county, for a few hours on the 15th instant.

Vegetation probably never made such progress during winter as it has done this year. Pastures continued to yield a full bite, and Cattle not only to retain their condition, but even to fatten, till the month of December; and the fields had then as deep a verdure as is usual in the month of May. Ryegrass and Clover on rich land, and where the Corn crop had not injured them, were in some fields ready to take the scythe. Wheat was never, in Scotland, seen so far advanced in growth at the first of January, as it was this year; and many have been afraid it was too luxuriant to bear the frost that might be expected either in winter or spring. The probability is, that severe frost or snows lying long, would injure the Wheat that has advanced in vegetation: but the thing is so new, that no person can speak on the subject from experience. An uncommon quantity of Wheat has been sown after Potatoes; and it has, at present, a promising appearance.

The uncommon growth of grass, and the fine weather during the winter, have allowed Cattle to be kept at pasture so long, that Fodder, which was by no means bulky, has been well saved; and all sorts of Stock are, where duly attended to, in fine plight.

The Muir Sheep never came to Candlemas in better condition; and if a storm should overtake them in the course of the spring, they are much better able to hold out against it, than when they have suffered during a long and severe winter.

The Ploughing was never seen so far advanced at this season: But if we have no more frost in spring than we have had in winter, the clay land will be much injured by want of it. It is remarkable, that, during three succeeding winters, the want of frost to open the pores of the clay, and pulverize the soil, has been much felt.

The Markets are far from being high; and all sorts of Provisions are of the very best quality. Butcher Meat was never better, or found in greater abundance.

The condition of the farmers, and the general interests of agriculture, have been greatly improved during the year 1818, and the prospect is still favourable. Many, who were reduced to great hardships by the failure of the crops of 1816 and 1817, have been much relieved by that of last season; and the drooping spirits of thousands begin to revive. Manure is now in demand, and has attained to nearly its former prices; and all sorts of improvements on the soil are beginning to be resumed. Those who occupy arable lands on the verges of the moors, or in high situations, or that which is of an inferior quality, never experienced a better season than that of 1818. But they had suffered much from the two preceding years. ——28*th January.*

Letter from Langholm, 28th January.

The weather during the winter quarter has been singularly mild, and vegetation has received very little check during those months in which the fields are usually locked up with frost, or covered with snow. About Christmas, the pastures exhibited the beautiful verdure of May or June; and, in many instances, afforded a fuller bite to the different stocks upon them, than could be obtained in these months of the preceding year. The consumpt of Fodder has of consequence been much smaller than ever remembered at this period of the season; but the abundant flush of soft grass during the latter part of autumn and winter, has been injurious to the health of the Sheep Stocks, as much sickness has prevailed in many places; and it is feared that the rot will be more fatal than for many seasons past, owing to the above cause, and the abundance of moisture, from the great quantities of rain which have fallen during the above period. Field operations are in great forwardness in all dry soils, as the plough has scarcely been interrupted a single day by frost.

The prices of Grain, &c. have fallen considerably since the date of last Report; and the ports being still open for the importation of Foreign Grain, it is expected that they will still be lower. The crop of last year, though not one of the most abundant, was cut down and secured in the best manner that we remember ever to have witnessed; and the crop of Potatoes, now become so essential a part of human food, has never been surpassed, either in quantity or quality, in this part of the country. Oatmeal is now selling by retail here at 2s. 10d. to 3s. per stone. Butcher Meat at 6d. per lib.; Fresh Butter at 10d. per do.; and Pork from 6s. to 7s. per stone. The prices of Stock, both Black Cattle and Sheep, were high during last season; but there seems to be less demand for Lean Stock at present in the English markets; and prices have of late undergone a small depression in consequence. Indeed, the prices for such kinds of stock had got too high to afford a fair remuneration to the grazier, considering that the rent of land is rather advancing at

present. The value of land seems to be also rising, as appears from some sales which have lately taken place; which affords a pretty just criterion of the returning prosperity of the country. But this desirable event cannot be accomplished while the price of labour continues so low; though, like all other things, it must find its own level in due time. It is to be hoped that this time is not very far distant.

East Lothian Quarterly Report.

Winter, so far as it has gone, has passed away without any of that severity natural to our northern climate. No snow can as yet be said to have fallen in the lower district of the county. The frost has never been so hard as to interrupt the plough, nor indeed materially to injure vegetation, in even what are reckoned delicate plants; such, for instance, as peas and beans, of which perhaps a greater quantity have sprung up, and are still growing among the young wheats, than were possibly ever before observed: and, with the exception of a few days, about the 12th current, and during the present week, there has been no rain to give the slightest hinderance to field operations of every description, throughout the whole quarter. Of course, ploughing is very forward, the stubbles generally being turned over; and most farmers have already begun to their lea intended for Oats. The Wheat is all well planted, and looking healthy, although some of the earlier sown fields, after summer fallow, may be considered as rather too thick in the ground, if not also too far advanced for so early a period; but the nature of the weather during the after seasons, can only determine that circumstance. In almost every field sown after peas and beans, as remarked above, an uncommon quantity of these grains have sprung up with the wheat, which must be ascribed to the remarkable mildness of the autumn and winter, as the crop at harvest sustained no particular injury after being cut. In some cases they have been pulled up by the hand; and in many more the same process must be followed, if the ensuing quarter is equally mild with the past; else it is probable that the following crop may turn out something liker tares than wheat.

Markets for grain have been liberally supplied during the winter; and prices have declined for all kinds of corn, but most for peas, beans, and wheat, although their intrinsic value is generally increased, from the improved condition of the grain. In Haddington, on the two last market-days, the best wheat was 38s. per boll; current prices about 36s. Best peas and beans 25s., and from that down to 20s. per boll, which is about 6s. less than the same species of grain would have brought three months ago. Oats were from 20s. to 25s., and barley from 35s. to 41s. per boll; the far greater proportion of the best parcels of the latter grain being already disposed of.

From the full maturity the Turnip crop attained by the mildness of the autumn, fears were entertained of their safety from the rot, in the event of hard frost setting in. Hitherto, however, no injury has been sustained from that cause. But the general opinion seems to be, that

at no former period have Fattening Stock made less improvement, than both Sheep and Cattle are doing this season on the Turnip. Besides, all kinds of Stock were bought in at very high prices during the autumn and beginning of winter, which, together, promise to the feeder but a very poor compensation for all his trouble and expenses. Some weeks ago, the Fat Sheep carried to market brought such prices as left a moderate profit for the food consumed; but latterly, in some cases, they have hardly brought the original outlay. What may ultimately be the result of Turnip feeding this season, time only can determine. But some are apprehensive, and not without cause, that the most of the Turnip will go for nothing; as, besides what is observed concerning the inferior quality of the food, and the high original prices, in more instances than usual, the Sheep themselves are found not altogether free of the rot, or some similar disease nearly as fatal.

During the winter, a good deal of discussion is understood to have been carried on in England relative to an alteration in the present Corn Laws, where petitions, numerously signed, are said to be in preparation for presenting to the Legislature for attaining that object. Nothing of the kind, however, has been agitated in this quarter, as, however pleased the farmers here might be with higher prices of grain, the general sentiment appears to be, that the present is not a very likely period when such a measure can be obtained; when so numerous a class of the population have so recently been suffering such privations from want. It no doubt might be urged, that, were the prices of grain high, the landholders and farmers would be enabled to employ a greater number of hands, and likewise to afford those employed higher wages; yet it would be a very difficult matter to persuade a labourer, or tradesman, with a starving family, that the best method that can be adopted for bettering his condition, was by directly raising the prices of the necessaries of life.—*30th January.*

West-Lothian Quarterly Report.

Perhaps no person living has seen such open growing weather in winter, as has occurred since the 1st of November last, the fields having, in most places, maintained the winter Stock without any foreign aid. The fodder (which was a scarce article) is now likely to maintain the Stock to the usual time of grass. It will be fortunate if no heavy falls of snow occur, as the young Wheats are too forward, occasioned by early sowing, and the extraordinary vegetation of last quarter. We have never been hindered from ploughing by any partial frosts that have occurred. Snow has fallen only partially on the upland district. We find the common field Turnips so far advanced, that not a few in every field are fast running to seed. Even the Swedes are tending the same way. The Turnip crop has fed well, there having been no frost to hurt them, or hinder the Cattle from having a full feed at all times.

The grain crop yields well on the barn floor; and the quality of all the kinds may be said to be equal to that of ordinary years.

Prices of Wheat from 36s. to 40s. per boll; Peas and Beans from 25s. to 27s.; Barley from 36s. to 42s.; Oats 22s. to 25s. per boll, all Linlithgow measure.

Oatmeal 18d. per peck of 8 lib. and 17½ oz. to the lib.

Potatoes are still plentiful, and selling at 8s. per boll of 28 stones Dutch. The London market soon became overstocked; and, of course, the demand from that quarter ceased.

Butcher Meat, according to quality, sinking offals, brings from 9s. to 10s. per stone of 17½ lib.; Mutton 7d. to 8d. per lib. Pork the same price. The Quartern Loaf from 10d. to 11d.; Butter 1s. 6d. per lib. of 22½ oz.; Eggs 10d. per dozen.—*28th January.*

Perthshire Quarterly Report.

The weather, during the greater part of the last quarter, was uncommonly mild and open. November passed over without the slightest indication of winter, excepting on the morning of the 18th, when the ground was covered with hoar-frost; but, even on that day, the thermometer, a few feet above the surface, did not sink so low as the freezing point. The temperature, in the day-time, was frequently as high as 55 and 56, and seldom lower than 40 during the night. Vegetation, of course, sustained no check. At the end of the month, Pastures were still as green as they had been during the autumn; the Turnip crop was daily improving; and the young Wheats were in a greater state of forwardness, than was ever known perhaps in this climate at the same season. Great fears indeed were entertained of their being too far advanced to recover, in the event of their being hurt by severe weather in the following months, or of ever producing a heavy ear. In many places, they were either cut, or eaten down by sheep.

A very remarkable change in the temperature of the air took place at the commencement of December, the daily average being nearly 10 degrees lower than that of the latter end of November. On the 11th, a pretty smart frost set in, which continued for several nights; but was again succeeded by mild weather, very much resembling that of the preceding month. The frost returned towards the conclusion of the month; and, for a night or two, was even severer than before, followed by clear warm days. The growth of the Wheat crop was of course checked, though not so much as might have been expected, owing to its being so far advanced as completely to cover the ground. The month, upon the whole, was rather mild than otherwise; and the weather being dry, field work was carried on with little interruption.

The month of January commenced with dry open weather; but, after the 6th, became very changeable. Like the corresponding month of 1818, the changes from frost to thaw were frequent and rapid, accompanied with violent hurricanes from the west and south-west. From the 18th to the 22d, the frost was pretty keen at night, being preceded by a very cold dry wind from the north. After the middle of the month, there fell a great deal of sleet and rain, so that the ground was completely drenched with water. Notwithstanding

all this, however, the weather was far from being so severe as it frequently is during the same month. If the labours of the field were interrupted, it was owing rather to rain than frost; and any interruption that was experienced will be but little felt, so much having been done during the former months. The following is an abstract of the weather for the Quarter.

	Number of Fair Days.	Number of Rainy Days.	Quantity of Rain.	Mean Temperature.
November -	13	17	3.054	46.8
December -	22	9	1.804	38.5
January -	13	18	3.372	37.7
			8.230	41.0

On comparing the above abstract with the corresponding quarter of last year, it will be seen that the quantity of rain is a quarter of an inch greater this year; and that the mean temperature is upwards of two degrees higher.

It is almost unnecessary now to say any thing of the quality of the last crop, as there is comparatively little, of Barley at least, unsold. A great proportion of the latter sold at very high prices, higher even than Wheat. Of late, however, grain of every kind has been on the decline. Neither Wheat nor Oats ever brought, at any period of the season, a price at all in proportion to that of Barley. Scarcely any change, indeed, took place in the price of Oats after the harvest, till of late, when, contrary to general expectation, they began to look downwards. Present prices in the Perth market—Wheat 35s. to 38s.; Barley 33s. to 36s.; Potato-Oats 22s. to 24s.; Common 19s. to 23s.; Oatmeal 1s. 7d. per peck; Potatoes 10d. per peck of 32 lib. Quartern Loaf, fine, 1s.; Coarse 9d. Meat 7d. to 8d. per lib.——1*st February.*

Tweeddale Quarterly Report.

The weather continued uncommonly fine through autumn. We had no frost, nor the slightest covering of snow, till the 22d of December, and it then continued but a few hours upon our mountains; and, from that time, we have had little of either frost or snow, but the weather has been changeable all this month. The prevailing winds have been from the south-west and west; often very boisterous, accompanied with heavy falls of rain, and high floods. Many of our fields having been ploughed, the soil is greatly washed by these heavy rains. Land that has been lately manured, particularly that which is over a close bottom with a swift descent, has suffered considerably in loss of manure. The forwardness of the labour, however, so far holds forth a pleasant prospect. As soon as the weather sets in dry in spring, the greater part of the land is ready to receive the seed.

The season has been favourable for the feeding with Turnip. Fodder has been saved by the tops and small Turnips having remained uninjured; they have afforded a good supply of food for the winter

Stock. The stackyards are thinning fast, the last crop not having been bulky. Unless the spring is very early, little will remain in our stackyards at Whitsunday.

Fat Stock may be said to bring fair prices, though not in proportion to the Lean in the autumn markets, which were extravagantly high. Our principal market is Edinburgh, where an account of the prices is published weekly.

In early and plentiful seasons, we have no demand for grain from the West, which is particularly the case this year; of course, our surplus grain is carried to Edinburgh and Dalkeith, which is a long and expensive carriage at this season of the year. The road to Edinburgh is good, but thickly planted with toll-bars; our road to Dalkeith is very bad. It is much to be wished that a market were established at Pennycuick. I believe this has been proposed, and I hope will be carried through.

This has been, hitherto, an excellent season for our mountain Flocks. The strong and active part of the Stock have hitherto kept, mostly of their own accord, on the heights; of course the low and sheltered pastures will prove an asylum in a storm. On dry Pastures that abound in heath, there have been, in some cases, a very considerable loss of young Stock, by what we provincially call the Sickness.—*27th January.*

ENGLAND.

Quarterly Report for Buckinghamshire.

A MORE favourable season than the present for all the purposes of the husbandman, is not in our recollection. If the summer was remarkable for its intense heat, the winter has been no less so for its agreeable mildness. Except a few days of frost at the close of the year, we may say, that hitherto there has been no winter at all; for vegetation has never yet received any considerable check, and the meadows retain their autumnal verdure. In consequence of this favourable weather, the apprehended scarcity of fodder has been but slightly felt; and Hay, which at one time was rising rapidly in price, has of late become stationary, or rather on the decline. Were it not owing to the increased value of Live Stock, a considerable reduction might have taken place in the Hay market; although, I must confess, that Straw is much in demand, and brings as high prices as were anticipated.

Stock, as might be expected, has thriven fully better than usual; by which our Butcher markets have always been plentifully supplied with meat of a superior quality, and our store Stock have continued to improve.

As the time is approaching when the fleecy race begins to yield its increase, the present is a critical season for the flock-master. But as the additions to our flocks are as yet partial, we can form no just opinion upon the lambing time. However, from the dryness of the season, and the soundness of the pastures, we have every reason

to hope for a favourable result. Turnips, which were a very irregular, and, in many instances, a very deficient crop, have been much spared by an open winter; but they are now disappearing very fast; and, should the spring prove either severe or late, a scarcity of that article may still be felt. Our crops having been early and light, the harvest work was speedily despatched, by which we were enabled to enter upon Wheat-seeding at an earlier period than usual. This circumstance, added to the genial weather which ensued, has produced a more flourishing plant of Wheat than has been seen for many years back; so much so, that most of the early-sown Wheat has been pastured by Sheep. At harvest, we apprehended a deficiency in our crops; and, upon proof, we now find that they come short of our expectations. Wheat, although superior in quality, is by no means above an average in quantity; and Oats, Beans and Barley, are not half a crop. From the great influx of Foreign grain which gluts our markets, the prices of corn have been rather on the decline; and, considering the failure of our crops, will not remunerate the grower.

The weather having been favourable, and the land always dry, field-labour is in a very advanced state; and we are now beginning to Bean-seeding. As seed is scarce, I understand many fields will be dibbled this year, instead of sown in the usual manner. This will no doubt create employment for many of our labourers, who, for want of work, have been supported by their respective parishes. Pauperism is still increasing; and our burden of Poor's rates fast accumulating to an alarming degree.

The price of Stock is high, and for some time has been stationary. Dairy produce is 20 per cent. higher than usual. Butter, 1s. 8d. to 1s. 9d. per lib. of 16 oz. The prices of Butcher-meat may be quoted thus—Beef, 7d. to 8d.; Mutton, 8d. to 9d.; Pork, 9d. to 10d. per lib. Wheat about 10s. per bushel. Barley, 70s.; Oats, 40s.; and Beans, old, 72s.; new, 80s. per quarter.

The Petitions to Parliament, for duties on foreign grain imported, are well supported, and receive many signatures; although some question the policy of the measure.—*25th January.*

Letter from the Neighbourhood of Lancaster, January 27th.

With the prospect of a scarcity of nearly every kind of cattle food, except Turnips, (of course being in great anxiety for their support during the winter), we have been blessed with one of the most propitious seasons ever known, which has enabled all Stock to do well, out, till a much later season than usual, and has dispelled our fears of scarcity. The Wheats wear a very promising appearance throughout the country. From their very forward state, we begin already to anticipate an *early Wheat harvest.* The Wheat of last summer's growth proves very excellent in quality, and is an average crop. Oats, in dry situations, are a miserable produce, but prove better at the mill than was expected, their light small grains being so much drier than usual. Those on moist soils in the valleys and hill sides, were seldom better.

Wheat is worth 9s. to 10s.; Oats, 4s. to 4s. 6d.; Beans, 7s. 10d.; Barley, 7s. per Winchester bushel. Oatmeal, 45s. per load of 240 lib. Beef, 7d.; Mutton, 8d.; Veal, 7d. per lib.

The Agricultural Petition is approved of by most of the landholders and farmers; but there is a good deal of hesitation in signing, very few considering themselves competent to judge of the subject. Some stand in awe of the Manchester mob; and others are influenced by the manufacturers. It was only commenced a fortnight ago, from unavoidable circumstances; but I have no doubt it will be respectably signed. Ploughing is forward, and other farm work going on well, the season has been so favourable to it. But there appears very little to communicate this Quarter. Farmers are in better spirits than they were; but I believe very few will be able to make up much for the losses of former years. Horses of all descriptions went off more readily at the late Preston Fair, than at some preceding ones. Cattle and Sheep are also in good demand.

Letter from Liverpool, 25th January.

We have had, during the preceding Quarter, a demand for most kinds of grain into the interior, and in much greater quantities than for several years back so very early in the season. This must either be owing to the farmers not thrashing out in the usual manner, on account of the scarcity of fodder—(the weather all along being more like spring than winter)—or to an actual deficiency of the crops in this part of the country. We are inclined to think the latter will turn out to be the case; though, probably, the fineness of the weather may be the means of keeping some back that might, under other circumstances, have been brought forward;—particularly as our late prices of Wheats have not been very tempting.

That all kinds of spring Corn in the South, and even in this neighbourhood, are deficient, is what must be admitted; but in consequence of the continued very heavy supplies of Foreign Corn, prices have hitherto kept moderately low, with the exception of Barley and Beans; but now, as there is every prospect of the ports shutting against foreign Wheats after the 15th of next month, we think there is a chance at least of a temporary advance in this article, and probably in Oats.—Barley being so much out of proportion with other articles, we do not expect prices higher, but rather otherwise; and having so many foreign Beans from the Mediterranean, &c. they are not likely to have any improvement.

Our supplies of New Corn have been chiefly from Ireland;—those coastwise have hitherto been but inconsiderable, but will be greater in a little time. Our stocks of foreign Wheat are still great; but it is difficult to ascertain the quantity with any degree of accuracy. The demand for American Flour has of late been very trifling; and therefore nearly the same quantity as mentioned in our last still remains on hand—now almost wholly sour.

Current Prices of Grain at Liverpool, on Saturday, 23d January, 1819.

Wheat,	English,	11s. 6d.	11s. 8d.	11s. 10d.	to	12s. 6d.			
"	Scotch,	11s. 3d.	11s. 6d.	11s. 8d.		12s. 0d.			per 70 lib.
"	Irish,	11s. 0d.	11s. 4d.	11s. 6d.		11s. 9d.			
"	Foreign,	9s. 0d.	10s. 0d.	11s. 0d.		12s. 6d.			
Barley,	English,	8s. 0d.	8s. 6d.	8s. 9d.		9s. 6d.			
"	Scotch,	7s. 6d.	7s. 9d.	8s. 0d.		8s. 3d.			per 60 lib.
"	Irish,	7s. 0d.	7s. 6d.	7s. 9d.		—			
"	Foreign,	6s. 0d.	7s. 0d.	7s. 6d.		8s. 0d.			
Beans,	English,	56s.	60s.	64s.		68s.			
"	Foreign,	45s.	50s.	56s.		64s.			
"	Scotch,	50s.	56s.	58s.		60s.			per quarter.
"	Irish,	45s.	50s.	54s.		56s.			
Peas,	White boiling,	60s.	70s.	76s.		—			
"	Grey,	50s.	54s.	56s.		—			per quarter.
Malt,	English,	10s. 6d.	11s. 0d.	Fine, 12s. 0d.		13s. 0d.			per 36quarts.
Oats,	English,	4s. 6d.	4s. 8d.	4s. 10d.		5s. 0d.			
"	Scotch,	4s. 3d.	4s. 6d.	4s. 8d.		4s. 10d.			per 45 lib.
"	Irish,	4s. 0d.	4s. 4d.	4s. 6d.		4s. 9d.			
"	Foreign	3s. 9d.	4s. 0d.	4s. 4d.		4s. 6d.			
Oatmeal,	English,	—	—	40s.		44s.			
"	Scotch,	33s.	34s.	36s.		38s.			per 240 lib.
"	Irish,	32s.	34s.	35s.		37s.			
Flour,	English,	50s.	52s.	54s.		56s.			per 240 lib.
"	Irish,	46s.	48s.	50s.		53s.			
"	American, sweet,	42s.	46s.	48s.		—			per barrel.
"	— sour,	35s.	35s.	38s.		—			
Indian Corn,		40s.	45s.	46s.		48s.			per quarter.

IMPORTATIONS *of* GRAIN, FLOUR, *&c. into the* PORT OF LIVERPOOL, *from the 27th October* 1818, *until the 25th January* 1819, *inclusive.*

Date	Description.	QRS. Wheat.	QRS. Barley.	QRS. Oats.	QRS. Malt.	QRS. Beans.	QRS. Peas.	QRS. Rye.	Oatmeal, 240 lib.	English Flour, 280 lib.	Barrels Amer. Fl. 196 lib.
1818	Coastwise	2,522	1,904	1,368	1,723	—	—	—	1,704	236	—
Nov.	Irish	13,127	1,658	54,183	—	152	—	—	1,924	3,470	—
	Foreign	10,871	2,280	—	—	3,680	646	—	—	—	829
	Coastwise	2,689	4,224	895	970	—	—	—	1,154	371	—
Dec.	Irish	9,843	816	31,133	—	—	—	—	1,958	1,500	—
	Foreign	6,680	3,615	228	—	3,879	5,027	—	—	—	1,435
1819	Coastwise	2,025	5,835	2,062	1,394	207	—	—	3,114	40	—
Jan.	Irish	11,200	156	23,236	—	232	—	—	2,508	3,410	—
	Foreign	3,933	128	130	—	11,650	265	790	—	—	5,051
	Total	62,890	20,616	113,235	4,087	19,780	5,908	790	12,342	9,027	5,315

Norfolk Quarterly Report.

It is very rarely that we experience a winter quarter so open, and so dry as the past has been. The aggregate quantity of rain which has fallen since our last Report is very trifling indeed; and as to snow, we have seen none except on one day in the last week, and then it remained but a short time on the ground. The winter has also been very free from frost, none of any severity having occurred,

if we except the 16th and 17th of December, when the thermometer fell to 22, or ten degrees below the freezing point. On the 31st it stood at 26. With these exceptions, the season has been comparatively mild; and notwithstanding the fears generally entertained, that the supply of fodder would be alarmingly short, we have pleasure in stating, that, up to this time, no want of cattle food has been experienced. The stock of straw was undoubtedly small throughout the kingdom; but owing to the dry weather since cattle have been in the yards, a far less quantity than usual has been required for litter. This is productive of one inconvenience, it is true, namely, that the farmer must necessarily fall short in the important article of manure in the ensuing year, to which also the inferior state of the turnip crop will not a little contribute. The quality of the roots is bad, of the white sorts more especially; and beasts have not done well this season. Indeed, many cattle owners have been under the necessity of resorting to oil-cake, notwithstanding its very high price (16*l.* per ton), but with little probability of being repaid by the price of beef. The Wheats are looking better than we ever remember to have seen them at this time of the year; and, even on the coldest and wettest clays, are very luxuriant. They are certainly too forward on some lands, such as gravels and light sands; and we have little hesitation in saying, that, in such situations, the later the crop was put in, the better, and the cleaner it will prove. The lands intended for fallows are in a state of extraordinary fine tilth and friability. Indeed, they work this year, even from the first ploughing, much better than they usually work when the last or seed-earth is given.

Our Corn markets have been tolerably steady. The produce is very short, as was expected, particularly of what may be called our staple crop, Barley. The grain, too, is much complained of by the maltsters, as being very difficult to work, and requiring more water in the process than the Legislature will allow. The Corn Petition has found its way into this county; and though there are necessarily many different opinions as to the expediency and propriety of adding fresh restrictions to importation, *particularly just at this time*, yet it has been numerously signed by the farmers. If we were disposed to find any fault with the Petition, we should say, it is not so much the *principle* of it, as applied solely to Corn, as the extension of that principle to such articles as Hemp, Flax, Hides, Tallow, and a variety of others, which it is folly to say we can produce of ourselves, and which it is consequently the height of folly to restrict foreigners from sending to us. After all, it is not very probable that Ministry will dare again to agitate a question so extremely obnoxious to their popularity, without a stronger necessity for it can be made out, than, as it appears to us, it is possible can be proved by the advocates of this measure. It should have taken place of the Corn Bill. It is now too late.—*27th January.*

Northumberland Quarterly Report.

The last quarter has probably been the most favourable for agri-

cultural purposes ever remembered, for the same season of the year. In the month of November, from the 4th to the 13th, it was mostly wet, with a flood on the 11th. There was much rain on the 23d. The rest of the month was fair, fresh and fine, which continued to the 15th of December, when we had one day's frost, from which it was fresh until the 28th. The remainder of the month was fresh. The three first days of January, with the 16th, 20th, 21st, 22d and 28th, were frosty. In December and January, along with the frosts there were some sprinklings of snow, which never exceeded two inches in depth; and the frosts were so moderate, that ploughing was not interrupted more than three or four days; so that this operation was never in greater forwardness at the same time of year.

Turnips, on account of the fine fresh weather through November, kept growing until Christmas. Many of those that were early sown have produced flowering stems; but, from the very slight frosts, there has been no loss on that account.

The autumn sown Wheats were never known more luxuriant; and it is generally thought, that those which were early sown are much too forward, and will not tiller in the spring months. All the lands cleared of Turnips are sown with Wheat.

The Corn markets have lowered considerably for some weeks past. The present prices are—Wheat, from 45s. to 50s. per Winchester bushel; Barley, from 35s. 6d. to 38s.; Oats, from 20s. to 24s.

The prices for Fat Stock, at Morpeth market, for some weeks past, have been—Cattle from 6s. 6d. to 7s. 6d. per stone of 14 lib., and Sheep from 7d. to 8d. per lib., sinking offal.—*28th January.*

Nottinghamshire Quarterly Report.

A DRY, mild, and serene winter, has hitherto succeeded a remarkably fine autumn; consequently less Hay, Straw and Turnips are consumed, than in the like time for many years. There is, however, a less quantity of winter keeping remaining than has been remembered at this period; which causes apprehension for the welfare of Live Stock the ensuing quarter.

Although only a small quantity of rain has yet fallen, the farmyards were never known to be so generally dirty, and deficient of litter and manure.

All Turnips are light; and there are instances of Sheep having consumed them to the amount of 1s. a head per week, where they are bought by the acre. The prices, where let by the week, are from 7d. to 9d. each. A very few beasts have been taken into straw-yards at from 2s. to 2s. 6d. each per week. It is feared Potatoes will be scarce. They are now sold for 10s. per sack (about 2 cwt.)

A great quantity of ploughing is done; and it has been deemed expedient to have some barley stubble lands ploughed for Spring Corn, which were sown with Clover and Grass Seeds. Many cleared Turnip layers are already ridged up for Barley.

The Growing Wheat has an excellent appearance. Some of it is

too forward, but by far the greater part is not so; and little indeed is too thin or late.

Markets for Fat Stock have been full, with rather lower prices; which may be attributed to a decline of 2s. a stone in the price of Tallow, and the scarcity and great value of Feed. Beef is now much inquired for, and sells at from 8s. to 9s. a stone. Sheep are more plentiful, and are worth from 8d. to 9d. per lib. Fat Pigs are from 8s. 6d. to 9s. a stone. Hides are now from 3s. 6d. to 4s. per stone; and Tallow 7s. per stone of 14 lib.

Milk Cows are very well sold: Not any other kind of Store Stock can be disposed of at present, although it is supposed Beasts and Sheep of every description will be extremely high in spring. The Scots drovers had capital markets for their Cattle about Michaelmas; but must lately have experienced losses. There are some complaints of the Rot in Sheep from the occupiers of lands in need of drainage.

The great influx of foreign grain has depressed prices; for quantities of every sort of it are offered in every market. The best Wheat is now worth from 80s. to 84s.; Barley from 68s. to 72s.; Oats from 28s. to 45s.; and Beans from 68s. to 74s. per quarter. Superior Blue Peas have been sold at from 120s. to 150s. per quarter, and are very scarce. Foreign Grain being in general light, and of inferior quality, is offered at much lower prices.

The last crop of Wheat proves under an average; the above prices are therefore too low. Of Barley, some farmers have not one quarter, and many less than two quarters, per acre; consequently, when the quantity for Seed Corn, and Malt for home use, is reserved, very little remains for sale. Oats and Beans yield miserably to the acre; so the above high prices are of no advantage to farmers in general, whose horses must consume their whole produce not wanted for seed.

Several parcels of Hops remain in the growers' hands, few having been disposed of since Michaelmas, and prices are lower.

A Petition to Parliament has been numerously signed at Nottingham, for the repeal of the Corn Bill, with a prayer that all foreign Wheat may be admitted without any duty, when the price is above 63s. per quarter; which, in the opinion of the petitioners, is a price that would fully remunerate the grower, and is quite high enough for the consumer. Such party sentiments need no comment.

A more rational and equitable measure is the petition, that Agriculture should be protected in a similar way to Manufactures and Commerce, but without detriment to either; which has lately been respectably signed in the Southern and Western counties: But as his Majesty's Ministers have signified their intention of opposing the measure, there is no hope of its being now accomplished. The Petition has not yet been introduced into this county; and it is apparent that it will require the support of the great land proprietors throughout the kingdom, before any good can be expected to result from it.——*28th January.*

East Riding of Yorkshire Quarterly Report.

From the unusual mildness of the season, and the dry and growing state of the pastures, the consumption of fodder has been greatly less than might have been expected. The appearance of the Stackyards in October was alarming; but now it is evident, that if the spring should not prove unusually late, there is no particular inconvenience to be apprehended from the want of food for cattle.

Wheat turns out of the first quality, full and dry; the straw yields so well, that pretty near an average crop of this grain may be expected. Oats and Barley are small, and will be almost as deficient in grain as they were in straw. From the extreme wetness of the last seed-time, the quantity of Beans sown was inconsiderable; scarcely any Bean stacks are to be seen in this district.

The growing Wheat looks luxuriant; but, from early sowing, and fine vegetating weather, the annual weeds have unfortunately sprung up among it in unusual abundance, and may ultimately injure the crop greatly. This is the more to be apprehended, as the drill is not generally adopted here for white crops; and the proper mode of ploughing, that might answer almost equally well, is seldom adopted. Turnips are now plentiful; and all agricultural operations in a very forward state.

I have much pleasure in reporting the general and progressive improvement that is taking place in the country. It will be long, very long, before the capital lost by farmers during the four or five years of distress can be returned; but those who weathered the storm, evince an increasing spirit, and are now making fresh exertions. It must, however, be remembered, both by landlords and by the country at large, that tenants now resemble recovering invalids, who show an increase of strength, but have not yet so far regained it as to be enabled to bear any unfavourable change, without incurring a relapse. We hear, through the medium of the newspapers, that petitions, intended to be laid before Parliament, are handing about the country, in behalf of the landed interest, to obtain some alteration in the Corn Laws, and higher protecting duties. This may be so; but we hear it only through the censuring newspapers;—no such petitions are seen in this district. The bulk of farmers here, I am inclined to think, would not consider a present inquiry into the Corn-Laws well-timed; it was a matter delayed too long, but ought not, therefore, to be agitated too soon. There are, indeed, circumstances relative to them, that require minute investigation; and, from the neglect of which, the growers may ultimately be great sufferers. I allude to the incorrectness of the averages that regulate the importation. Let us petition, if we must petition, not for an alteration of the law, but for the inforcement of it as it now stands. To do this, our customary measures must be reduced to the standard Winchester; our averages must be fairly taken; and we must cease to sell our inferior grain in a corner, whilst we openly expose our best samples.—Let it be inquired how the returns are taken, from that

great emporium, Mark-lane, to the city of York;—for, it is certain, if these were really correct, the ports would frequently be closed when they are not so. Whenever an alteration in the Corn Laws should take place, it would be most desirable, that weight should be substituted for measure.—Weight is the criterion of value, and much less liable to occasion disputes between buyer and seller; the dread of this is one great cause of the usual surplus of the measure.

Present prices —Beef and Pork, 8s.; Mutton, 9s., per stone, sinking the offal. Wheat, 82s.; Barley, 40s.; Oats 35s. per quarter Winchester.—Markets steady.—*26th January.*

Letter from Glamorganshire, 25th January.

The weather has been remarkably fine and temperate throughout the season, seldom varying much. Such a winter, I may venture to say, has never been known by the oldest man living, for both arable and stock farmers. In the first place, the arable farmer, through the fineness of the weather, has been enabled to get on with his field labour of every denomination to a very great extent; and as to the graziers or stock farmers, I think they have been favoured beyond all calculation. Had the winter set in severe, as we have experienced it sometimes, what would have become of them? For the dryness of the summer, which was felt by so many, occasioned a great alarm how they should get their stock brought through the winter; the hay crop, the spring corn, and the turnips all being so deficient in quantity: But by the mildness of the weather, those doubts and fears are nearly all removed; for the turnips have improved much beyond expectation, although still far below an average crop; and a great number of cattle still remain out in the fields, with very little aid from the straw yard; and, except the sheep that are intended for the butcher, all the rest are still living upon the old pastures, without either hay or turnips.

Those farmers that are fattening stock this season, may probably be very much disappointed with regard to the price they expected when they put them up in autumn; for at that time it was generally believed, that good beef would have been by this time from 10d. to 1s. *per* lib., and mutton more; but instead of that, stock of all kinds have rather fallen than advanced for the last three weeks. The only kind that sell well are young store cattle for the strawyards; others are but little sought after.

I am glad to see, by the daily prints, that the Agricultural Petition is meeting with so good encouragement through the country. In this county it has been signed by a very respectable body of farmers and proprietors of land; and I hope it will meet with every encouragement.

The Corn-markets, for the last three months, have remained nearly stationary. In the beginning of the season, the Wheat sold better in the Bristol market than it did here; and on that account, a great quantity of corn was sent thither from this quarter; but now, I believe, our markets have got the start upon Bristol. Wheat from

9s. 9d. to 10s. 6d.; Barley, 6s. 6d. to 8s.; Oats, 3s. 6d. to 5s. *per* Winchester bushel; Beef from 5½d. to 7d.; Mutton, 6½d. to 8d.; Pork, 6½d. to 8d. per lib. The season having been so very mild, the young Wheats have shot up to a great length; and many of the farmers have been obliged to eat them down with sheep; others have left them to take their chance. Those, I think, that have grazed them down have done right; but time will determine that point.

The crop of this last year, generally speaking, is rather below an average, spring crops in particular; and I think that a great many will be deceived when they thrash their corn, for it was thought by many that it would yield better than it really does.

*** Our Reporters, and Correspondents in general, are respectfully requested, along with the local weights and measures which they may have occasion to quote, to give their equivalent in Avoirdupois weight and Winchester measure. There is such a diversity in both, in England as well as in Scotland, that they cannot otherwise be generally intelligible. It is not expected that minute accuracy should be attempted, especially in the case of the local measures of Scotland; but there can be little difficulty in converting even these into the Winchester bushel or quarter within one or two per cent. If this should be inconvenient, the Avoirdupois weight of the measure, of a boll of any sort of grain for instance, might answer nearly as well.

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D. Willison, printer, Edinburgh.